DOCUMENT RESUME

ED 039 961	08	RC 004 352

AUTHOR	Amsden, Constance
TITLE	A Reading Program for Mexican-American Children, Third Interim Report. Final Report.
INSTITUTION	California State Coll., Los Angeles.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-5-0559
PUB DATE	Sep 69
CONTRACT	OEC-6-85-070
NOTE	142p.
EDRS PRICE	EDRS Price MF-$0.75 HC-$7.20
DESCRIPTORS	Beginning Reading, Bilingualism, Curriculum Research, Early Reading, Educational Experiments, Group Behavior, Home Visits, *Language Development, Low Achievers, *Mexican Americans, Preschool Learning, *Primary Grades, Program Descriptions, *Program Evaluation, Reading Development, *Reading Programs, Sex Differences, Student Behavior, Tables (Data), Verbal Learning
IDENTIFIERS	California

ABSTRACT

The third and final interim report is devoted to analysis of research data relating to a 3-year experimental reading program for Mexican American children at the Malabar Street School in Los Angeles. The program utilized language development methods, individualized instruction, and parental assistance to improve the children's competencies. Using 4 hypotheses, the investigators attempted to identify significant differences in reading, arithmetic, and language development with the preschool and primary students as compared to 1966 baseline data. Using the Stanford Reading Test, the California Reading Test, a project designed Sight Vocabulary Test, and the Malabar Vocabulary Test with the sample, it was concluded that there were significantly higher scores on the reading tests by children in the experimental program when compared to baseline groups and there was evidence of significant achievement in oral language development. In addition, experimental third-grade pupils were slightly superior in total arithmetic scores. Achievement differences between the sexes were also cited. Recommendations included using the Malabar experiment as a model for Los Angeles; employing research aides for part-time teacher assistance; expanding the program to the 4-6 grade level; and providing inservice training for school personnel. (ED 016 757 is a related document.) (AL)

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FINAL REPORT

Project No. 5-0559
Contract No. OE-6-85-070

A READING PROGRAM FOR MEXICAN-AMERICAN CHILDREN
Third Interim Report

Constance Amsden

California State College, Los Angeles
5151 State College Drive
Los Angeles, California 90032

September, 1969

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Office of Education
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RC 004352

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ACKNOWLEDGMENTS

This project is a joint effort of the California State College at Los Angeles, the Los Angeles City Schools, and the Youth Opportunities Foundation.

We are particularly indebted to the project teachers at the Malabar Street School for their continued classroom explorations.

The preparation of the total report is a joint effort of the research team. However, major responsibility for conducting the oral language research, as well as the writing and editing of this report, has rested with Dr. Adams and Dr. Amsden.

The work of Dr. Wayne Zimmerman, Test Officer at the college, in factor analysis has added to our understanding and is gratefully achowledged.

The work of the research assistants Robert Gomez, Edward Hernandez, Frank Hidalgo and Raoul Asais, in developing the Malabar Vocabulary test, is very much appreciated.

We also wish to acknowledge the contribution of Miss Graciela Tapia of the Instuto Norteamericano Mexicano de Intercambio Cultural.

Special gratitude must be expressed to Mrs. Mathilde Wallace who has again assisted us in the typing and assembling of this report.

SUMMARY

Although this report constitutes the final report for Project No. 5-0559, it is the third interim report for: A Reading Program for Mexican-American Children, developed at the Malabar School and scheduled to be expanded into other volunteer schools of East Los Angeles in 1969-1970.

Individualized instruction and parent participation have been emphasized in all five aspects of the reading program for the primary grades: (1) writing, (2) phonics, (3) word discrimination, (4) comprehension and (5) self-teaching. In this report end-of-project results on standardized reading tests, a project-developed Sight Vocabulary Test, and measures of oral language development (described in the Second Interim Report) are compared with baseline data obtained in 1966.

Results from all tests administered in grades 1, 2 and 3 support the first research hypothesis: that children who have had the enriched, individualized program described as the Project Method, will attain significantly higher results on standardized tests of reading than the baseline groups measured in 1966. Considerable evidence concerning a beneficial "spread effect" on all-school results in reading was also obtained.

Considerable evidence was obtained to support the second research hypothesis for children in the primary grades, viz., "Children who have had the Project instructional program will also attain significantly higher results on measures of oral language development." At the preschool and kindergarten levels, however, data on this second research hypothesis were inconclusive.

Only two classes of children had received a full two years of project instruction in the primary grades at the time of this report; these classes consistently excelled baseline data by a wider margin than did first grade children who had been in the program only one year. However, additional evidence is needed to justify acceptance of the third research hypothesis, that children who had been in the program two or three years would attain significantly higher results than those who had been in the program for shorter periods of time.

Despite the relatively heavy emphasis on reading instruction, the fourth research hypothesis was confirmed in that achievement in arithmetic did not suffer, but was somewhat superior to baseline data.

Replication of a 1966 research study on grade-level trends in oral language development resulted in the confirmation of the following findings: (1) decrease with grade level in the percentage

of words in reportage responsums and an increase in the percentage of T-unit words, (2) increase with grade level in the mean length of the child's T-units, and especially in the mean length of his three longest T-units; (3) increase in the use of total adverbials, especially in the use of both adverbial phrases and clauses; and (4) increase in the number of clauses per T-unit, as well as the average length of clause.

The 1969 study made it possible to compare results on measures of oral language development obtained by two different methods. It was found that young children tend to show greater linguistic maturity in many language measures when they are interviewed by a bilingual adult, as compared with their spontaneous language in informal situations.

CHAPTER I

INTRODUCTION

Background Information

Designed to improve the children's competency in speaking, reading and writing in the language of instruction, this project had its origin in a pilot language-development preschool, initiated in 1964-65 and funded by the Los Angeles City Schools. Tape recordings of the preschoolers' monologues and conversations with others revealed that few children from this bilingual residential area were likely to attain by first grade the degree of proficiency in English which is desirable as a base for instruction in reading. It seemed essential, if these children were to attain the desired competency in reading, that (1) most of the school day in the kindergarten and primary grades be devoted to language development and reading, (2) reading instruction be individualized and adapted to the special needs of these children, and (3) parents be involved as much as possible in helping their children learn.

During the fall and winter of 1964-65, Mr. Felix Castro, Director of the Youth Opportunities Foundation, worked with the present Project Director in formulating a project proposal and in obtaining feedback from school and community leaders. With the cooperation of the Los Angeles City Schools and California State College, Los Angeles, a research proposal was submitted to the United States Department of Health, Education and Welfare in the spring of 1965. During the fall semester, 1965-66, work began.

The First Interim Report covered the work for the first year, i.e. through August, 1966. Since the decision to shift to computer analysis of data involved transitional problems, the Second Interim Report was delayed until March, 1968; this report covered work done from September 1, 1966 through February, 1968. The current report therefore covers a relatively short time, i.e. the six-month period, March through August, 1968.

Children Included in the Study

All children in the primary grades at the Malabar School were included in a continuous study of reading achievement. The Sight Vocabulary Test[1] was individually administered to children in B1 through A3 each semester; standardized achievement tests were administered each semester to children in A1, A2 and A3 classes; while another standardized test of achievement in reading and arithmetic was administered annually to all third graders in May of each school year.[2] Since many Malabar teachers have incorporated project methods and materials into their classroom work, the reading achievement of all primary-grade children was of interest. Test results are also reported separately for sub-groups of A1, A2 and A3 pupils with differing amounts of project experience.

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[1] This individually administered test involves recognition of a sampling of 116 words from the children's pre-primers, primers, first and second-grade readers. Two parallel forms have been developed.

Each year two kindergarten classes, totally approximately fifty children, have been included in the project. Project kindergarten classes for the past two years (1966-67 and 1967-68) have all been taught by the same teacher.

A continuous enrollment of 30-40 preschool children, three to five years of age, has been maintained over the three-year period of the project. The preschool children are selected from those who wish to attend on the following bases:

1. Age (3-0 to 4-6 at time of admission)
2. Sex (balance with respect to number of boys and girls is maintained)
3. Language (balance with respect to number of Spanish- and English-speaking children is sought)
4. Willingness of parents to participate in the project (considered essential to optimum development in language)
5. Parents' willingness for teacher to make weekly home visits

Since these preschool children come from volunteering families, they may constitute an unrepresentative sample of children in the area.

Research Hypotheses

At the close of this third year of the project, data are presented to test the validity of the following hypotheses, originally presented in the first interim report for 1966:

1. Children who have had the enriched individualized instructional program, described as the Project Method[3], will attain significantly higher reading scores on standardized reading achievement tests

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[2] The standardized testing program is given in: A Reading Program for Mexican-American Children: First Interim Report, 1966, p. 28.

[3] The Project Method is described in Part One of the 2nd Interim Report.

than did the baseline groups tested in Spring, 1966.

2. Children who have had the Project instructional program will also attain higher results on measures of oral language development.

3. Children who have been included in the program for two or three years will attain significantly higher scores in both reading and oral language development than those who have been included in the program for shorter periods of time.

4. Despite the relatively heavy emphasis of the Project program on reading instruction, project children will not achieve significantly lower scores in arithmetic.

Organization of This Report

This report is devoted entirely to the presentation and analysis of research data. The instructional program has been adequately described in the first and second interim reports, especially the latter. The procedures for data collection and language analysis have been adequately described in these two reports also; hence the new instruments developed and new statistical procedures used in this report are described along with the analysis of relevant research data.

Although this report covers only a six-month period, the work reported herein is extensive, including: (1) summary of reading test results for each semester of the project and comparison with baseline data; (2) analysis of language samples from 1968 Oral Language Interviews[4] obtained from all project children in preschool through grade three, as well as a sampling of nonproject children (K-3); (3) comparison of 1968 oral language measures with 1966 baseline data; (4) analysis of the relationships of 1968 oral language data to reading ability, sex, and grade; and (5) studies of the interrelationships of language measures, e.g. (a) a factor-analysis study of oral language data for children in three project classes; and (b) a comparative study of language measures based on samples from spontaneous conversation and Oral Language Interviews for kindergarten and preschool children.

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[4] Sixty-six measures of basic structure, complexity and/or variety were used in the analysis of 300-word samples from transciptions of 312 Oral Language Interviews.

Part One involves the testing of research hypotheses concerning children's progress in reading and language development. Chapter II is chiefly concerned with the reading progress of primary-grade children; different measures of reading achievement for 1967 and 1968 are compared with baseline data. Since the fourth research hypothesis involves maintenance of achievement in arithmetic, data on this hypothesis are also included in this chapter. Chapter III summariezes 1968 data on oral language development for project children in the preschool, kindergarten and primary grades, in comparison with baseline data.

Part Two summarizes research data on the relationship of oral language measures to reading achievement, age and sex. Since there is very little retention in the Los Angeles schools, grade level is used as an indirect measure of age. Chapter IV involves a replication of a study with 1966 baseline data[5]; data for each Oral Language measure are studied to see whether there are significant changes with grade level; and whether the measure differentiates significantly between broups of high and low readers within each of the three grade levels. In Chapter V data on each language measure is studied to see if boys and girls differ significantly on that measure within each of the three grade levels.

In Part Three sub-groups of children from project classes are studied more intensively to obtain evidence on interrelationships among oral language measures. In Chapter VI a correlation matrix is studied, in which twenty-seven oral language measures are intercorrelated, in addition to chronological age, vocabulary and reading achievement. Then a factor analysis study involving thirty variables is presented.

In Chapter VII, a comparative study is made of language measures obtained by different methods from the same children. Oral language measures, obtained from preschool and kindergarten children by two different methods, are compared with one method involving spontaneous language recorded in the preschool or kindergarten setting and the other, an Oral Language Interview with a bilingual adult.

Part Four, "Summary and Recommendations," contains only one chapter which summarizes findings of the research on reading achievement and language development and includes recommendations with respect to further research.

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[5] This study is reported in Chapter IX of the Second Interim Report.

PART ONE

RESEARCH ON CHILDREN'S PROGRESS IN READING AND LANGUAGE DEVELOPMENT

CHAPTER II

CHILDREN'S PROGRESS IN READING ACHIEVEMENT

Since many Malabar teachers have incorporated project methods and materials into their classroom work, and since it has been impossible to keep most project classes intact for more than two semesters, the major approach to the testing of the first and fourth research hypotheses (as stated in Chapter I) will be a comparison of all-school results with 1966 baseline data for each of the primary grades.

Evidence of All-School Progress in Reading Achievement

Each semester, the form of the Stanford Reading Test required by the California State Testing program was administered to the A1, A2, and A3 classes. In the A2 and A3 classes the more appropriate Primary I test was also administered by the project staff to supplement the required Primary II test. Such supplementation by an easier test was impossible for the A1 pupils because the state-required Primary I was the easiest form of that test available.

As was emphasized in the first interim report, the state-required tests are too difficult for the first and second graders, with only the best readers obtaining valid scores. The reader can note (in Tables B-10 and B-14 of the Appendix) that the 25th percentile in total reading scores (corrected for guessing) ranged from -1.3 to 3.7 for A1 pupils and from -1.6 to 0.8 for A2 pupils on these state-required tests. On these same tables it will be noted that prior to the 1967-68 school year, median corrected scores for A1 and A2 pupils were all below a score of 5. The lowness of these corrected scores indicates the unsuitability of the state-required test for a majority of first and second grade pupils at this school.

Results for first-grade pupils. Even though the state-required test for A1 pupils was so difficult, the results for both January, 1968 and May, 1968 permit us to support the first research hypothesis; i.e., significant differences are shown on all reading subtests and on total reading when 1968 results are compared with 1966 baseline data. (Table I). Table B-10 in the Appendix shows consistent increases in the 75th and 90th percentiles as well. According to Table III and Figure 1, the percentage of pupils scoring in the third stanine and above has increased from 7.5 percent in 1966 to more than 40 percent in each semester of 1967-68.

Although the 1968 all-school means for A1 pupils are only one to two months above baseline grade placements (Table I), the gain in

TABLE I

COMPARISON OF MEAN GRADE PLACEMENTS ON STANFORD READING PRIMARY I, 1966-1968

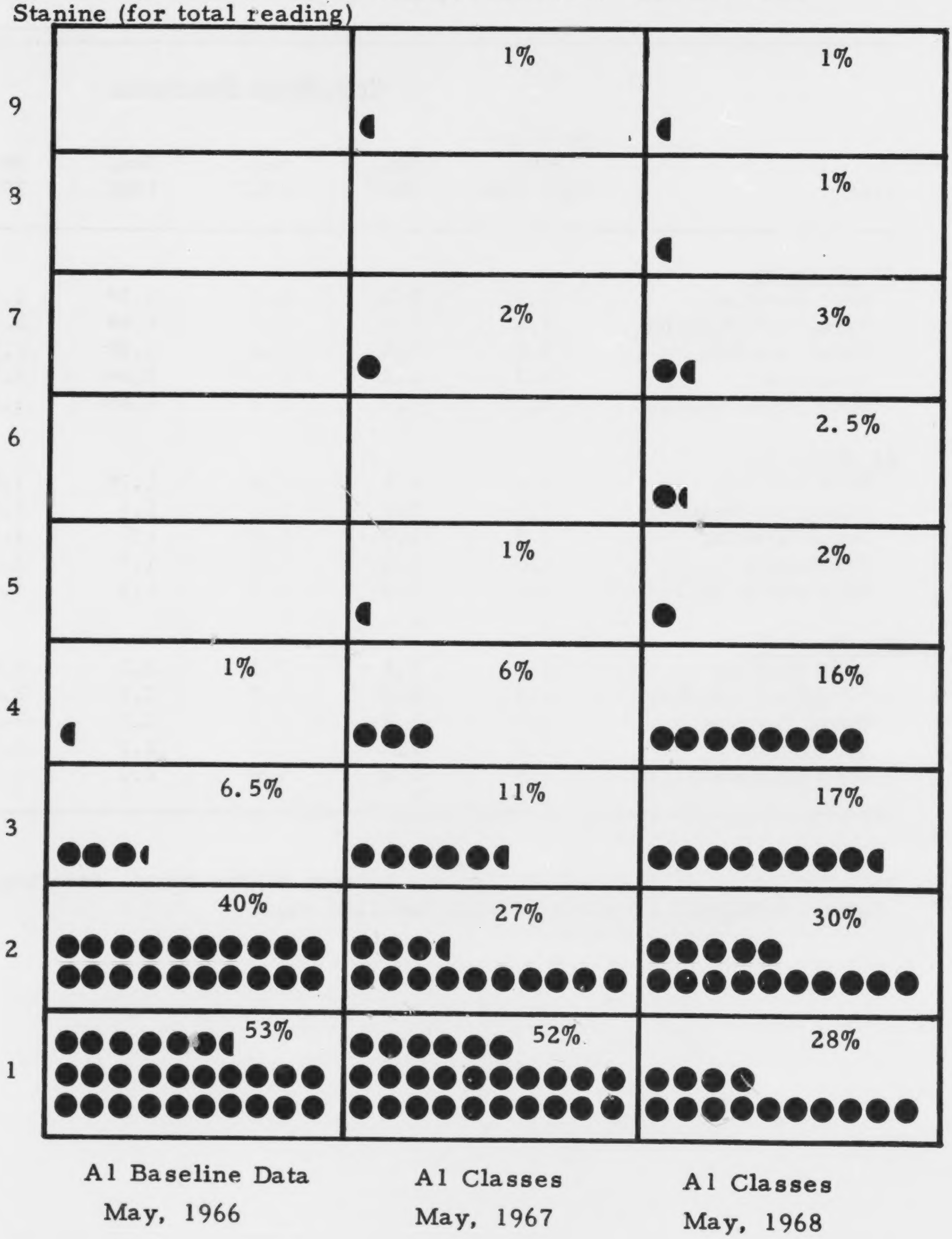
		Mean Grade Placements			
Test	Baseline Data May, 1966	Jan. 1967	May 1967	Jan. 1968	May 1968
A1 (Form W)					
Word Reading	1.3	1.3	1.3	1.5*	1.5*
Paragraph Meaning	1.4	1.4	1.5	1.6*	1.6*
Total Reading	1.4	1.4	1.4	1.6*	1.5*
Vocabulary	1.3	1.3	1.4	1.6*	1.4*
Word Study Skills	1.3	1.2	1.3	1.4*	1.4*
A2 (Form X)					
Word Reading	1.6	1.6	1.6	1.7*	1.8*
Paragraph Meaning	1.7	1.7	1.6	1.6	1.8*
Total Reading	1.7	1.7	1.6	1.7	1.8*
Vocabulary	1.6	1.6	1.6	1.5	1.7
Word Study Skills	1.5	1.5	1.5	1.5	1.8*
A3 (Form Y)					
Word Reading	2.0	2.1	2.2	2.3	2.4*
Paragraph Meaning	1.9	1.9	1.9	2.1	2.2*
Total Reading	1.9	1.9	2.0	2.0	2.3*
Vocabulary	2.2	2.0	2.2	2.1	2.3
Word Study Skills	1.9	1.8	1.9	2.0	2.4*

*Statistically significant difference in mean Rights score, favoring later semesters, as compared with baseline data.

FIGURE 1

Comparison of Stanines for A1 pupils, Stanford Reading Test, Primary I

Malabar All - School Results for 1966, 1967 and 1968



LEGEND: Each ● represents 2 per cent

median corrected score in total reading is from only 1.3 in 1966 to scores of 15.0 and 11.5 respectively in January and May of 1968 (Table B-10). Moreover, the 75th percentile on corrected score in total reading is five times as high in January and May of 1968 as it was in May, 1966.

The project-developed Sight Vocabulary Test (involving recognition of a sampling of words in the children's own readers), showed significant gains for each semester of the project, in comparison with baseline data (Table IV).

Results for second-grade pupils. The difficult state-required Stanford Primary II for A2 pupils shows significant gains in May, 1968 for the subtests on Paragraph Meaning and Word Study Skills, (Table II). The more appropriate Stanford Primary I shows significant gains in all subtests except vocabulary. According to Table III and Figure 2, one-fourth of A2 pupils scored in the third stanine and above in the state-required Primary II, as compared with 15 per cent for baseline data. If one studies Table B-11 in the Appendix, one notes considerable improvement over baseline data in the 75th and 90th percentiles; e.g., in total reading the 75th percentile for May, 1968 is a grade score of 2.3 as compared to 1.8 for baseline data; the 90th percentile for May, 1968 is 2.8 as compared to 2.4 for baseline data. The project-developed Sight Vocabulary Test shows significant gains for only the May, 1968 testing as compared with baseline data (Table IV).

Results for third-grade pupils. Three different standardized reading tests were administered to A3 pupils--the state-required Stanford Primary II, the easier Primary I, and the California Reading Test (which has been administered to Malabar third grade pupils each year since 1964). Both the Primary I and Primary II tests show A3 pupils significantly exceeding baseline data in Total Reading (with gains of four and three months respectively. Both also show statistically significant gains in the subtest on Word Study Skills (Tables I and II).

In the Stanford Primary II, the percentage of pupils scoring in the third stanine and above on Total Reading increased from 27.5 per cent in 1966 to 34 per cent in each semester of 1967-68 (Table III and Figure 3). Even greater increases were obtained on the California Reading Test* i.e., (from 36 to 69 per cent) as shown in Table III and Figure 1. In Tables B-15 and B-17 of the Appendix, it will be noted that the median grade placement in Total Reading increased almost as much on the more difficult Primary II (a gain of four months) as on the Primary I (a gain of five months).

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*The California Test tends to give higher grade placements than the Stanford; some of the reasons why the Stanford grade placements are relatively low are related to the composition of their horming sample, as discussed in the first interim report, pp. 50a - 50c.

TABLE II

COMPARISON OF MEAN GRADE PLACEMENTS ON STANFORD READING, PRIMARY II, 1966-1968

	Mean Grade Placements				
Test	Baseline Data May, 1966	Jan. 1967	May 1967	Jan. 1968	May 1968
A2 (Form W)					
Word Meaning	1.8	1.7	1.8	1.8	1.8
Paragraph Meaning	1.7	1.7	1.7	1.7	1.8*
Total Reading	1.8	1.7	1.7	1.7	1.8
Word Study Skills	1.6	1.6	1.9	1.9	1.9*
A3 (Form X)					
Word Meaning	2.3	2.6	2.5	2.5	2.5
Paragraph Meaning	2.2	2.4	2.4	2.5*	2.5*
Total Reading	2.2	2.5	2.4	2.5	2.5*
Word Study Skills	2.1	2.1	**	2.3	2.8*

* Statistically significant difference in mean Rights score favoring later semesters as compared with baseline data.

** Due to an error in test scheduling, this supplementary test was not administered to a majority of pupils in May, 1967.

FIGURE 2
Comparison of Stanines for A2 pupils, Stanford Reading Test, Primary II
Malabar All - School Results for 1966, 1967 & 1969

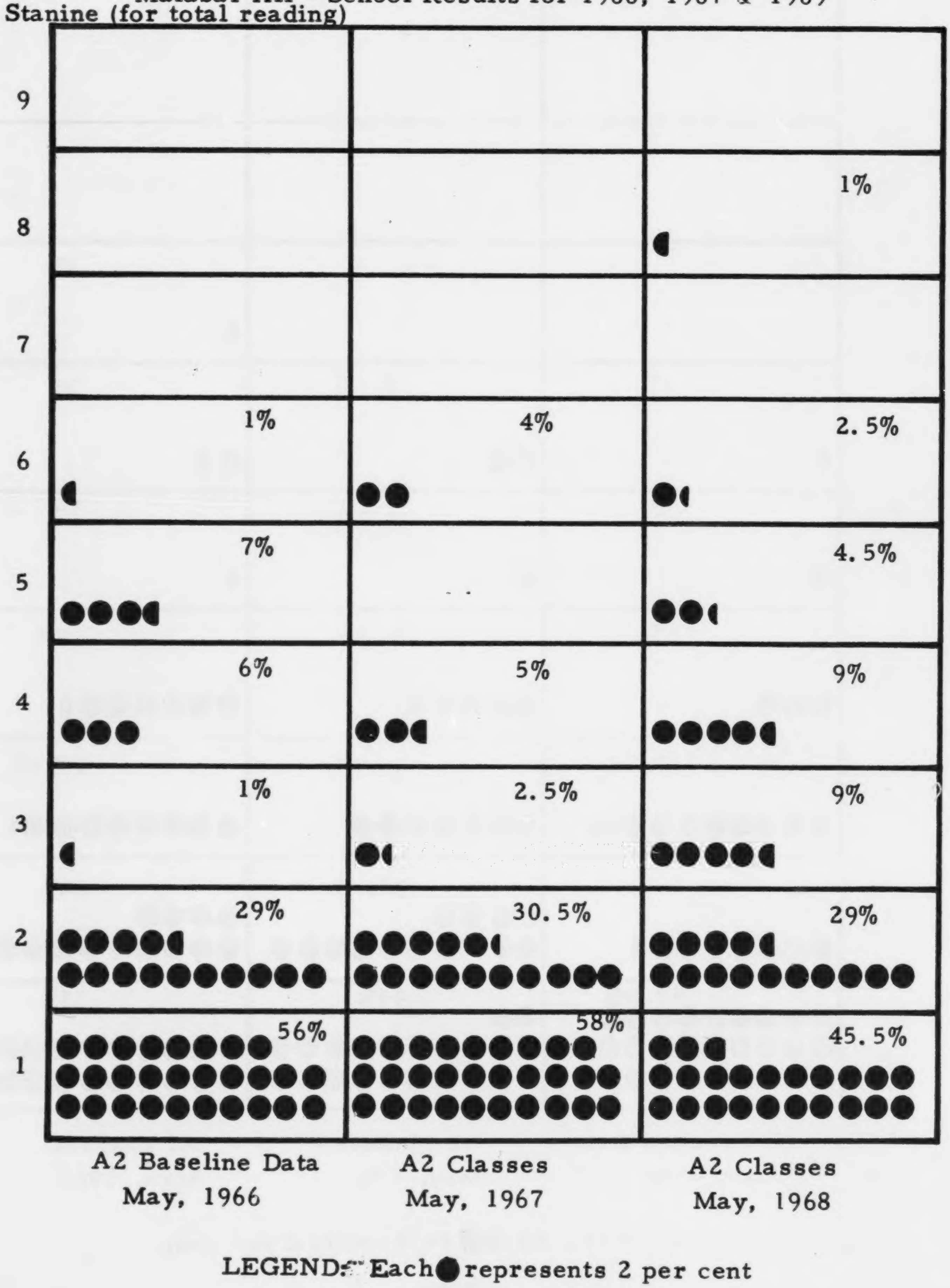


FIGURE 3
Comparison of Stanines for A3 pupils, Stanford Reading Test, Primary II
Malabar All - School Results for 1966, 1967 and 1969

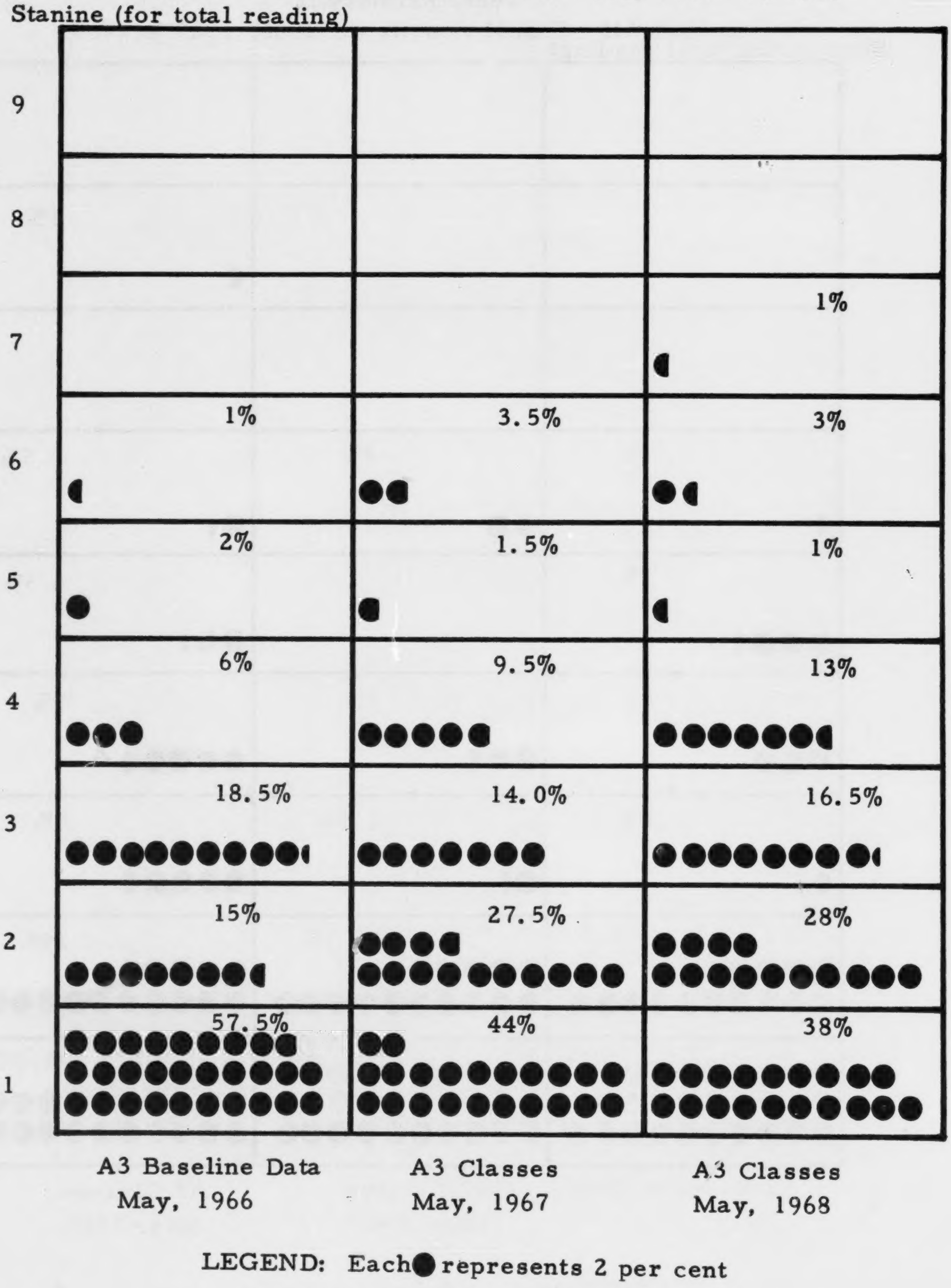
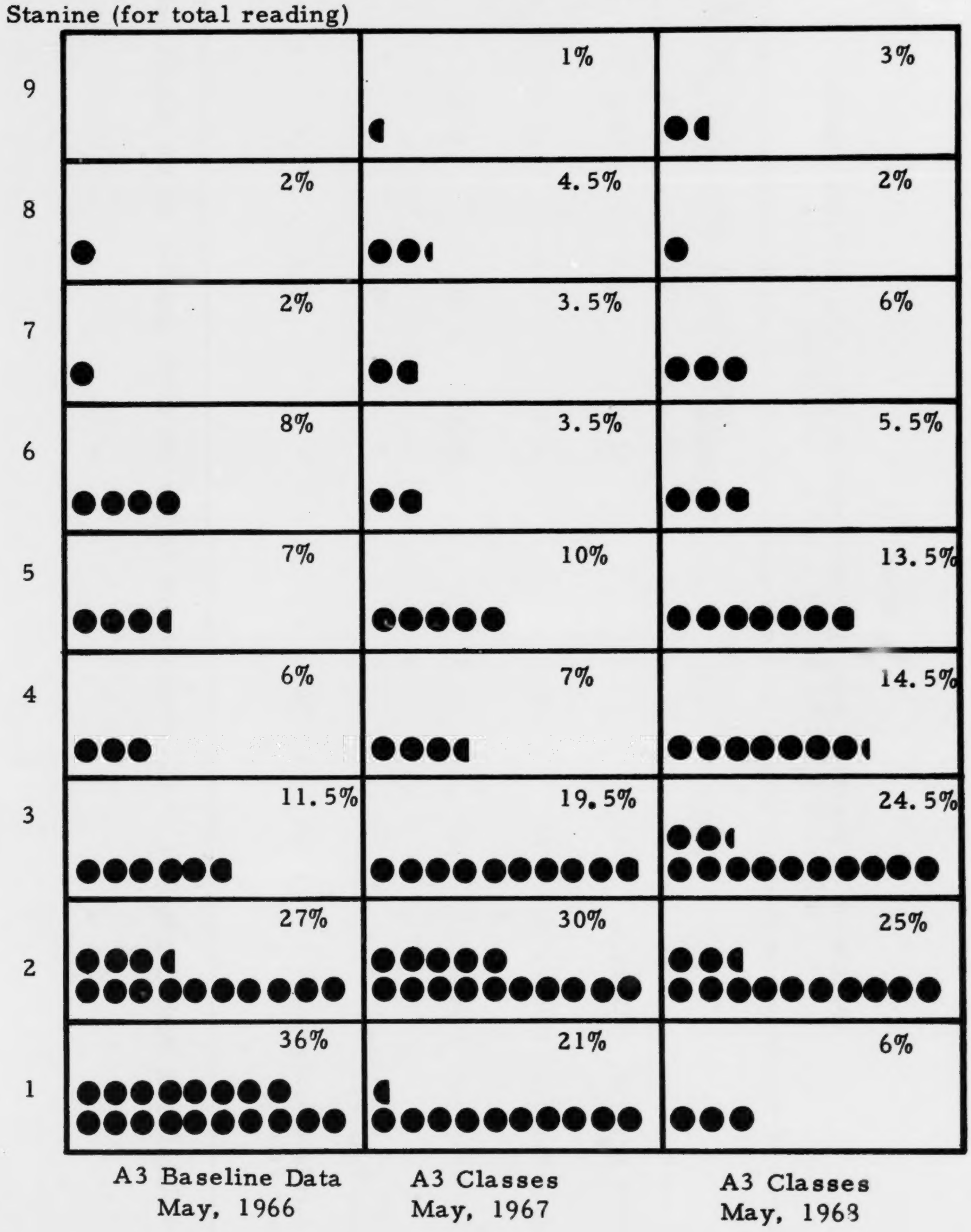


FIGURE 4
Comparison of Stanines for A3 pupils,
California Reading Test, Upper Primary
Malabar All - School Results for 1966, 1967 and 1968



LEGEND: Each ● represents 2 per cent

TABLE III

PERCENTAGE OF PUPILS SCORING IN THIRD STANINE AND ABOVE IN TOTAL READING FOR EACH SEMESTER OF THE PROJECT: ALL-SCHOOL RESULTS

TEST	GRADE	BASELINE DATA MAY, 1966	PERCENTAGE IN 3RD STANINE AND ABOVE			
			JANUARY 1967	MAY 1967	JANUARY 1968	MAY 1968
Stanford Reading, Primary I	A1	7.5	12.0	21.2	48.1	41.7
Stanford Reading, Primary II	A2	14.5	14.1	12.4	16.4	25.4
Stanford Reading, Primary II	A3	27.5	30.8	28.2	34.8	34.3
California Reading Test, Upper Primary	B3	58.5	*	62.8	*	79.8
California Reading Test, Upper Primary	A3	36.3	*	48.7	*	69.1

* The California Achievement Test is not administered during the first semester of the school year.

Table IV

COMPARISON OF MEAN SCORES ON SIGHT VOCABULARY TEST, 1966 - 1968

		Mean Scores				
Grade	Baseline Data May, 1966	Jan. 1967	May 1967	Jan. 1968	May[a] 1968 Form 1	Form 2[a]
B1	5.1	19.1*	30.5*	31.2*	30.9*	23.5*
A1	20.1	34.0*	48.4*	49.8*	55.2*	50.3*
B2	37.8	44.2	63.0*	b	80.2*	79.1*
A2	70.2	64.7	67.4	77.3	93.8*	89.9*
B3	73.0	78.4	86.1*	88.4*	96.5*	92.4*
A3	83.6	84.9	93.9*	92.8	107.8*	102.4*

*Statistically significant difference in mean Rights score favoring later semesters as compared with baseline data.

[a] Form 2 (Appendix A) was developed (utilizing a comparable sampling of words from the preprimers, primers, and readers). This form was administered to eliminate any practice effects due to repeated use of Form 1 with the same children.

[b] Because of an error in scheduling, a majority of B2 pupils were not administered this test in January, 1968.

Tables V and VI summarize the results for B3 and A3 pupils on the California Reading Test for a five-year period. During this period the B3 median has increased by .8 year in Total Reading, while the A3 median has increased a full year. For the B3 classes, only 38 per cent of the five-year gain in median grade score has taken place since the project was initiated. For the A3 class, however, 70 per cent of the five-year gain has taken place since the project was initiated. Under the semi-annual promotion system, which is being abandoned by the Los Angeles Schools in 1969, children in B sections have their academic year interrupted annually by summer vacation; these sections are also less likely to have a teacher assigned for a full school year.

In summary, results from all tests at all grade levels support the first research hypothesis;

> Hypothesis 1: Children who have had the enriched individualized instructional program described as the Project Method, will attain significantly higher reading scores on standardized reading achievement tests than did the baseline groups tested in Spring, 1966.

It should be noted that these comparisons were made on all-school results. Results for classes clearly identified as project classes are presented in the next chapter section.

Mean reading scores for boys and girls are summarized in Table VII for all tests. Girls exceeded boys at both the first and second grade levels in their mean scores on the project-developed Sight Vocabulary Test. With the exception of a small but statistically significant superiority for first-grade girls on Paragraph Meaning and Total Reading, there are no other statistically significant sex differences in the entire table.

Evidence of Progress in Reading Achievement in Project Classes

Perhaps the best single test of the project method is the reading achievement of the two A2 classes who have had project teachers during the four semesters of first and second grade (Table VIII). These children significantly exceeded baseline data on the Sight Vocabulary Test, all subtests of the Stanford Primary I except Vocabulary, as well as on the Paragraph Meaning and Word Study Skills subtests of Primary II. These classes excelled baseline data by four months in the Word Reading and Word Study Skills subtests of the Primary I and by five months in the Word Study Skills subtest of the Primary II.

The majority of pupils in one of the 1968 A1 classes had had project instruction in both preschool and kindergarten. Even though

TABLE V

CALIFORNIA READING TEST GRADE SCORES FOR B3 PUPILS (UPPER PRIMARY, FORM W), 1966-1968

Sub-Test and Date of Administration	N	Percentile					Q	$P_{90}-P_{10}$
		90	75	50	25	10		
Reading Vocabulary								
May, 1964	67	3.2	2.4	1.7	1.4	1.1	.5	2.1
May, 1965	78	3.6	3.0	2.0	1.4	1.1	.8	2.5
May, 1966	64	3.5	3.1	2.4	1.9	1.4	.6	2.1
May, 1967	67	3.6	3.2	2.5	1.8	1.3	.7	2.3
May, 1968	84	3.9	3.3	2.6	2.2	1.8	.55	2.1
Reading Comprehension								
May, 1964	67	3.2	2.4	2.0	1.6	1.5	.4	1.7
May, 1965	78	3.3	2.8	2.1	1.6	1.4	.6	1.9
May, 1966	64	3.5	3.0	2.3	1.8	1.6	.6	1.9
May, 1967	67	3.7	3.1	2.5	1.9	1.6	.6	2.1
May, 1968	84	3.4	3.1	2.6	2.2	1.9		
Reading Total								
May, 1964	67	3.1	2.3	1.8	1.5	1.3	.4	1.8
May, 1965	78	3.3	2.8	2.0	1.5	1.3	.65	2.0
May, 1966	64	3.5	3.0	2.3	1.8	1.5	.6	2.0
May, 1967	67	3.6	3.1	2.6	1.9	1.6	.6	2.0
May, 1968	84	3.5	3.1	2.6	2.1	2.0	.5	1.5

TABLE VI

CALIFORNIA READING TEST GRADE SCORES FOR A3 PUPILS (UPPER PRIMARY, FORM W), 1966-1968

Sub-Test and Date of Administration	N	Percentile					Q	$P_{90}-P_{10}$
		90	75	50	25	10		
Reading Vocabulary								
May, 1964	103	3.9	3.3	2.4	1.8	1.4	.75	2.5
May, 1965	102	3.9	3.3	2.4	1.8	1.5	.75	2.4
May, 1966	114	3.8	3.5	2.4	1.9	1.0	.8	2.8
May, 1967	115	4.0	3.6	3.1	2.2	1.9	.7	2.1
May, 1968	110	4.0	3.7	3.3	2.9	2.3	.4	1.7
Reading Comprehension								
May, 1964	102	3.6	3.4	2.3	1.9	1.6	.75	2.0
May, 1965	102	3.6	2.9	2.3	1.9	1.6	.5	2.0
May, 1966	114	3.7	3.3	2.6	2.0	1.3	.65	2.4
May, 1967	115	3.8	3.4	2.7	2.2	1.8	.6	2.0
May, 1968	110	3.9	3.7	3.3	2.8	2.5	.45	1.4
Reading Total								
May, 1964	102	3.8	3.3	2.2	1.8	1.5	.75	2.3
May, 1965	102	3.7	3.2	2.3	1.8	1.6	.7	2.1
May, 1966	114	3.8	3.3	2.5	1.9	1.0	.7	2.8
May, 1967	115	3.9	3.4	2.9	2.2	1.8	.6	2.1
May, 1968	110	4.0	3.7	3.2	2.8	2.4	.45	1.6

TABLE VII

COMPARISON OF READING TEST RESULTS FOR BOYS AND GIRLS

Test	Comparison of Means for Boys and Girls					
	A1		A2		A3	
	Boys	Girls	Boys	Girls	Boys	Girls
Number of Cases	66	59	62	46	45	38
Sight Vocabulary Test						
Current semester (May, 1968)	43.0	57.7*	84.7	95.2	105.1	101.8
Preceding semester (December, 1967)	25.4	37.7*	65.4	96.5*	86.4	90.4
Stanford Reading Test, Primary I						
Word Reading	1.4	1.5	1.8	1.9	2.4	2.5
Paragraph Meaning	1.5	1.6*	1.8	1.9	2.2	2.4
Total Reading	1.5	1.6*	1.8	1.9	2.4	2.4
Vocabulary	1.4	1.4	1.7	1.6	2.5	2.2
Word Study Skills	1.3	1.4	1.8	1.9	2.5	2.3
Stanford Reading Test, Primary II[a]						
Word Meaning			1.8	1.8	2.6	2.5
Paragraph Meaning			1.8	1.9	2.5	2.5
Total Reading			1.8	1.9	2.5	2.5
Word Study Skills			1.9	1.9	2.8	2.8
California Achievement Test, Upper Primary[b]						
Reading Vocabulary					3.3	3.3
Reading Comprehension					3.3	3.4
Total Reading					3.3	3.3
Arithmetic Reasoning					3.6	3.5
Arithmetic Fundamentals					4.0	4.1
Total Arithmetic					3.8	3.9

*Statistically significant difference in raw scores ($p < .05$), favoring boys or girls.

[a] Stanford Reading Test, Primary II, was administered only to A2 and A3 classes.

[b] California Achievement Test, Upper Primary, was administered only to the third-grade level.

TABLE VIII

COMPARISON OF READING TEST RESULTS (1967-68) FOR PROJECT CLASSES WITH BASELINE DATA FOR SCHOOL (MAY, 1966)

	Sight Vocab. Test	Mean Grade Scores on Stanford Primary I					Mean Grade Scores on Stanford Primary II[a]				CAT
		Word Rdg.	Para. Mean.	Total Rdg.	Vocab.	Word SS	Word Mean.	Para. Mean.	Total Rdg.	Word SS	Total Rdg.[b]
Five A1 classes with project instruction in 1st grade	59.0*	1.4*	1.6*	1.5*	1.4	1.4*					
One A1 class with project instruction in kindergarten and 1st grade	48.0*	1.4	1.5	1.4	1.5*	1.3					
One A1 class with project instruction in preschool, kindergarten and 1st grade	49.2*	1.6*	1.6*	1.6*	1.5	1.4*					
Combined A1 project **classes**	56.0*	1.5*	1.6*	1.5*	1.4	1.4*					
A1 baseline data (5/66)	20.1	1.3	1.4	1.4	1.3	1.3					
Two A2 classes with project instruction in 1st and 2nd grades	99.8*	2.0*	1.9*	1.9*	1.6	1.9*	1.8	1.9*	1.9	2.1*	
A2 baseline data (5/66)	70.2	1.6	1.7	1.7	1.5	1.5	1.8	1.7	1.8	1.6	
One A3 class with project instruction in 3rd grade and a training teacher the preceding semester	110.2*	2.7*	2.6*	2.7*	2.4	2.6*	2.6	2.6*	2.6*	2.6*	3.3*
A3 baseline data (5/66)	83.6	2.0	1.9	1.9	2.2	1.9	2.3	2.3	2.2	2.1	2.8

*Statistically significant difference in Rights score ($p < .05$), favoring project class or classes, as compared with baseline data (May, 1966).

[a] Stanford Reading Test, Primary II, was administered only to A2 and A3 classes.

[b] California Reading Test, Upper Primary, **Form W was administered only at the third grade level.**

[c] The term "training teacher" is applied to a teacher who is in his first semester of project work.

the Stanford Primary I is really too difficult for A1 children, this class significantly excelled baseline data in all subtests except Vocabulary. Another A1 class in which the majority of children had had project instruction in both kindergarten and first grade excelled baseline data in three of the five scores, but only the difference in vocabulary was significantly superior to baseline data.

The five A1 classes that had had project instruction for one year only had mean test scores which were significantly higher than baseline data in all subtests except vocabulary. Although none of these differences exceeded two months, the larger number of cases involved made these small differences statistically significant.

All combinations of A1 project classes excelled baseline data on the Sight Vocabulary Test, but those with project preschool and kindergarten experience did not score as well as the five classes with first-grade instruction only. It is important to remind the reader that project preschool and kindergarten classes contained an unusually large percentage of children from Spanish-speaking families (approximately 50 per cent as compared with 28 per cent in the school as a whole) (Table I-3, First Interim Report); hence it may be unreasonable to expect these children to excel randomly selected children which had had project instruction in first grade only. In fact, in project classes, it is gratifying to note that these children from project preschool and kindergarten markedly exceeded baseline data on the Sight Vocabulary Test.

One A3 class that had had both semesters of third grade with a project teacher and the preceding semester with a training teacher was significantly better than baseline data in all Primary I subtests except Vocabulary and in all Primary II subtest except Word Meaning. All differences, varying from two to eight months in size, favored project class. The differences in Total Reading grade placement favoring the project class was eight months on the Stanford Primary I, four months on the Stanford Primary II, and five months on the California Reading Test.

The data in support of the third research hypothesis, as it relates to reading achievement, could not be considered conclusive.

> Hypothesis 3. Children who have been included in the program for two or three years will attain significantly higher scores in both reading and oral language development than those who have been included in the program for shorter periods of time.

Although the A2 classes with two years of project instruction consistently excelled baseline data by a wider margin than did the A1 classes with only one year in the project, other data are inconsistent with the third hypothesis. The first-grade class with both project preschool and kindergarten instruction excelled the class with only kindergarten instruction in four of the five reading scores; however, the numbers of cases was too small for all differences to be statistically significant. The highest and most consistent differences favoring project classes as compared with baseline data are observed for the third grade class with only three semesters of project instruction. The fact that standardized tests are more valid for these older pupils may contribute to this difference. For example, Tables III, V and VI show especially large gains on all-school results for the California Achievement Test at the third-grade level.

A longer period of time is needed to test this third hypothesis; no groups have had three years of primary-grade instruction in the project; and only two classes have had two years. The largest number of project classes have been at the first-grade level where standardized test results are probably not valid for a majority of pupils. When one recognizes that a teacher requires at least one or two semesters to become oriented to new approaches to instruction, it is evident that a longer period of Project instruction is needed for adequate testing of this third hypothesis.

Evidence of Progress in Arithmetic

Since the Los Angeles City Schools had agreed that 80 per cent of the instructional time in project classes could be devoted to reading and other aspects of language development, it was essential that evidence be obtained on the effects of such a concentration on children's achievement in arithmetic. Hence the following hypothesis was formulated:

> Hypothesis 4. Depite the relatively heavy emphasis of the Project program on reading instruction, Project children will not achieve significantly lower scores in arithmetic.

Fortunately the California Arithmetic Test had been administered to B3 and A3 pupils at Malabar School since 1964. The results for 1964 through 1968 are summarized in Table IX for B3 pupils and Table X for A3 pupils. It will be noted that the 1968 median for Total Arithmetic exceeds the baseline (1966) data by one month for B3 and two months for A3 pupils. For the A3 pupils, which constitute the larger group, the gain in Arithmetic Reasoning (which depends partially on reading ability) was six months during the 1966-1968 period.

TABLE IX

CALIFORNIA ARITHMETIC TEST GRADE SCORES FOR B3 PUPILS (UPPER PRIMARY, FORM W), 1966-1968

Sub-Test and Date of Administration	N	Percentile					Q	$P_{90}-P_{10}$
		90	75	50	25	10		
Arithmetic Reasoning								
May, 1964	66	3.0	2.4	2.0	1.5	1.2	.45	1.8
May, 1965	78	3.3	2.7	2.2	1.6	1.0	.55	2.3
May, 1966	63	4.0	3.7	2.6	2.3	2.0	.7	2.0
May, 1967	68	3.8	3.3	2.6	2.0	1.6	.65	2.2
May, 1968	85	4.0	3.2	2.6	2.2	1.8	.50	2.2
Arithmetic Fundamentals								
May, 1964	66	3.3	3.1	2.8	2.2	1.7	.45	1.6
May, 1965	78	3.4	3.2	2.8	2.3	1.6	.45	1.8
May, 1966	65	3.9	3.4	3.1	2.5	2.2	.45	1.7
May, 1967	68	4.4	3.6	3.2	2.8	1.9	.4	2.5
May, 1968	85	4.4	3.8	3.3	3.0	2.6	.4	1.8
Total Arithmetic								
May, 1964	66	3.2	3.0	2.8	2.1	1.7	.45	1.5
May, 1965	78	3.4	3.1	2.8	2.4	1.7	.35	1.7
May, 1966	62	3.8	3.4	3.0	2.6	2.3	.4	1.5
May, 1967	68	4.6	3.6	3.1	2.7	1.9	.45	2.2
May, 1968	85	4.1	3.6	3.1	2.9	2.6	.35	1.5

TABLE X

CALIFORNIA ARITHMETIC TEST GRADE SCORES FOR A3 PUPILS (UPPER PRIMARY, FORM W), 1966-1968

Sub-Test and Date of Administration	N	Percentile 90	75	50	25	10	Q	$P_{90}-P_{10}$
Arithmetic Reasoning								
May, 1964	102	4.0	3.5	2.4	1.8	1.3	.85	2.7
May, 1965	99	3.8	3.3	2.6	2.0	1.6	.65	2.2
May, 1966	114	4.0	3.6	2.9	2.3	1.5	.65	2.5
May, 1967	116	4.0	3.7	2.9	2.3	1.8	.7	2.2
May, 1968	110	4.1	3.9	3.5	2.9	2.5	.5	1.6
Arithmetic Fundamentals								
May, 1964	102	4.2	3.8	3.2	2.7	2.3	.55	1.9
May, 1965	99	4.0	3.6	3.3	2.9	2.4	.35	1.6
May, 1966	114	4.8	4.5	3.8	3.1	2.4	.7	2.4
May, 1967	116	4.8	4.4	3.9	3.2	2.4	.6	2.4
May, 1968	110	4.9	4.8	4.1	3.5	3.0	.65	1.9
Total Arithmetic								
May, 1964	102	4.1	3.6	3.1	2.8	2.4	.4	1.7
May, 1965	99	3.8	3.6	3.1	2.8	2.5	.4	1.3
May, 1966	114	4.3	4.0	3.6	3.0	2.4	.5	1.9
May, 1967	116	4.3	4.0	3.6	3.1	2.4	.45	1.9
May, 1968	110	4.6	4.2	3.8	3.5	2.9	.35	1.7

Summary

In this chapter, evidence was presented to show that children in project classes at all three grade levels had improved significantly in the Sight Vocabulary Test (based on their own reading series), in the Total Reading grade score on the Stanford Reading Primary I, and in all subtests except Vocabulary. The all-school results in reading also showed significant gains by May, 1968 in the Sight Vocabulary Test, in all subtests of the Stanford Reading, Primary I except Vocabulary (at the A2 and A3 levels) and Paragraph Meaning (at the A3 level). The percentages of children scoring at the third stanine and above increased substantially by May, 1968 in the state-required tests at all grade levels as well as the California Reading Tests at the B3 and A3 level.

Tests administered at the B3 and A3 level from 1964 to 1968 showed improvement in achievement in arithmetic at both grade levels.

CHAPTER III

CHILDREN'S PROGRESS IN ORAL LANGUAGE

The testing of the second research hypothesis concerning improvement in oral language has involved considerable work in the selection and development of oral language measures to be applied to language samples obtained in 1966 and 1968. In the first interim report, the first-level analysis was made of baseline language samples, taken from the recorded spontaneous language of preschool and kindergarten children and from transcriptions of Oral Language Interviews with children in the primary grades. Each word or sound was classified under one of the following classifications:

1. Reportage responsums (message-carrying responses that are incomplete predications)
2. T-units (message-carrying responses that are minimal terminable units); and
3. Maze material (consisting of hesitations, false starts, incomprehensible passages, and incomplete predications that cannot be classified as message-carrying).

The rationale behind the choice of these units, and the directions to analysts for segmenting the typescripts in this way, are given in the first interim report.

Early in the second year of the project, the decision was made to study many different measures of the complexity and variety of the children's language, including several devised especially for this study. They may be summarized as follows:

1. Additional measures of basic structure (mean length of the child's three longest T-units and of the child's three longest T-units without variations from standard English)
2. Predication patterns and verb types
   a. Classification of each T-unit into one of six types, as follows:
      I Subject + intransitive verb
      II Subject + linking verb + predicate adjective
      III Subject + linking verb + predicate nominative
      IV Subject + transitive verb + direct object

V Subject + transitive verb + indirect object + direct object

VI Subject holder + verb + subject (This classification represents a modification of that used in Loban's study[1] as explained in the second interim report.)

b. Classification of finite verbs into verb types (present tense, present progressive, past tense, etc.)

3. Adverbials (number of intensifiers, adverbs, adverbial phrases, and adverbial clauses, as well as the ratio of each to number of verbs in the language sample).

4. Nominals

Although twenty-five different types of nominals were identified (as listed in Appendix A of the second interim report), only five types were used by children with sufficient frequency to be summarized in the tables; these were: Types Ia, Ib, IIa, IIc, and IIIb as defined in the tables of this and other chapters. The number of infrequently used nominals and the per cent of unmodified nominals were also computed for each child.

5. Measures of Subordination

Each subordinate clause was identified and classified as an adverb, adjective, or noun clause. The total number of subordinate clauses was used to compute the subordination ratio, as well as the ratio of clauses to T-units. Mean length of clause was also computed for each student, and the number of verbals in each sample was counted.

6. Measures of variety

Since the variety measures were devised for this study, each has been explained in detail in the second interim report. Ten variety measures were used in the analysis of 1968 data. They involved counting for each sample the number of each of the following:

Predication x verb types used
Adverbial type x position combinations used
Nominal types used
Nominals of infrequently used types
Different adjectives used

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[1] Walter Loban, Language Ability: Grades Seven, Eight, and Nine, Monograph No. 18, U.S. Department of Health, Education, and Welfare, Office of Education (Washington, D.C.: Government Printing Office, 1966), p. 10.

Types of compounds used
Types of verbals used
Different uncommon prepositions used
Different uncommon adverbs used
Different uncommon intensifiers used

Each of these measures is described and illustrated in the second interim report. Inter-rater reliability, as well as reliability coefficients across interview situations (reflecting many sources of error variance) are also given in this report.

Evidence of Progress in Language Development for Primary-grade Project Children

Oral Language Interviews were conducted with all project children in the B1, A2, and A3 grades and with a sampling of fifty project children in the A2 grade. All interviews were conducted by three bilingual college students, two of whom also conducted the baseline Oral Language Interview held two years earlier. Following a warm-up period of conversation with the child in both Spanish and English, the interviewer stimulated the child to converse in the following three areas:

1. What television show do you like the best? ...What's it about? ...Can you tell me anything else about the program?

2. [In the presence of a display of toys] Of all these toys, which one do you like the best? ...Tell me why.

3. [On the presentation of three of Loban's pictures] Which one of these do you like the best? ...What are the children doing in the [selected] picture? ...Make up a story about the picture.

Allowable variations and prompts, as well as questions for the warm-up period, are given in Appendix A of the first interim report.

In Table XI, the first-level analysis of 1968 Oral Language Interviews is compared with 1966 baseline data. One B1 class is included in the 1968 data since a majority of this class had attended both project preschool and kindergarten. The A1 baseline data are used as the basis of comparison for both B1 and A1 project children.

At three grade levels (A1, A2, and A3), the 1968 interviews of project children show a significantly smaller percentage of maze material than was noted in the 1966 baseline data. In both the A1 and A2 groups, there was a corresponding increase with respect to percentage of words in T-units. On the latter measure, the B1 group (which had had both project preschool and kindergarten) excelled the 1966 baseline means for both first and second grade.

TABLE XI

FIRST-LEVEL ANALYSIS OF ORAL LANGUAGE INTERVIEW INTO T-UNITS, MAZES AND REPORTAGE RESPONSUMS: COMPARISON OF 1968 MEANS FOR PROJECT CLASSES WITH 1966 BASELINE DATA

Variable	Comparison of Means by Grade Level						
	Baseline Data (1966)			Project Children (1968)			
	A1	A2	A3	B1	A1	A2	A3
Number of cases	59	52	60	29	50	84	28
Per cent of words in Oral Language Interview classified as:							
Mazes	15.2	16.2	15.0	12.0	12.5*	11.6*	11.5*
Reportage responsums	28.8	20.4	18.5	19.8*	24.9	20.3	22.0
T-units	56.1	63.4	66.7	68.4*	60.6*	68.1*	66.3
Mean length of;							
All T-units	5.7	6.1	6.7	5.7	5.7	6.0	6.5
Three longest T-units	9.7	11.4	12.8	11.7*	11.4*	12.8*	11.5
Three longest T-units without variations	7.7	9.2	10.9	9.1	9.3*	10.6*	9.5

*Mean significantly higher than for 1966 baseline data ($p < .05$). A1 baseline data are used as the basis for comparison for both B1 and A1 project children.

One of the most reliable first-level measures across interviews was the mean length of the child's three longest T-units. On this language measure, project children from the B1, A1, and A2 grades significantly excelled baseline data. They also excelled consistently on mean length of the three longest T-units without variations; but the difference was statistically significant at the A1 level only.

In Table XII, on predication patterns and verb types, there are few significant differences between 1968 project and 1966 baseline data. The most consistent difference is in the greater use of the past tense by A1, A2, and A3 pupils, with the first and third grade differences being significant at the .05 level.

In Table XIII, on the use of verbs and adverbials, it is evident that the first and second grade project children use more verbs, adverbs, and adverb phrases than did the corresponding baseline groups. In total number of adverbials of all types used, project children excel baseline data significantly at the B1, A1, and A2 levels. However, this large number of verbs and adverbials is due, in part, to the larger number of T-unit words in the samples for project children. One cannot explain in this way, however, the fact that all four project groups excel baseline means on complexity of adverbials, i.e., on the ratio of adverbials to verbs modified. At only the B1 and A1 levels, however, are these differences statistically significant.

In Table XIV, the larger number of nominals merely reflects the larger average number of T-unit words in the samples for project children.

In Table XV, the increase in number of clauses reflects the larger number of T-units in which clauses can occur. However, the first and second-grade groups for 1968 are clearly superior to corresponding baseline groups in number of adjective clauses, the 1968 means being more than twice as high as those for 1966.

The project first-grade pupils (both B1 and A1) significantly exceed baseline data in several variety measures, i.e., in number of predication x verb types used, in number of adverbial types x position combinations, in number of different adjectives used, and in number of different compounds used (Table XVI). The A2 pupils were significantly superior to baseline data in only two variety measures, and the A3 pupils in only one such measure.

In summary, the B1 class (with project preschool and kindergarten experience) showed many evidences of accelerated language development; i.e., they significantly exceeded means for baseline A1 children (who averaged 5-7 months older and had had one more semester of first-grade instruction). These B1 pupils had a much higher percentage of T-unit words, averaged two words higher in mean length of their three longest T-units, had a significantly higher ratio of adverbials to verbs, and exceeded A1 baseline data in nine of the ten variety measures (with five of these differences being statistically significant).

TABLE XII

TYPES OF PREDICATION PATTERNS AND VERBS
COMPARISON OF 1968 MEANS FOR PROJECT CLASSES WITH 1966 BASELINE DATA

Variable	Comparison of Means by Grade Level						
	Baseline Data (1966)			Project Children (1968)			
	A1	A2	A3	B1	A1	A2	A3
Number of Cases	59	52	60	27	50	84	28
Percentage of Predications of Each Type:							
Type I	36.6	40.4	36.3	43.9*	37.3	41.3	37.0
Type II	5.2	6.9	6.4	6.8	7.0	8.2	6.4
Type III	3.5	4.8	4.7	3.7	6.9*	3.9	4.6
Type IV	51.3	42.4	46.9	43.3*	46.5	42.9	49.8
Type V	.5	.6	1.0	.6	.7	.8	1.3
Type VI	2.9	4.9	4.7	1.9	1.9	3.0	1.1
Percentage of Verbs of Each Type:							
Present Tense	61.2	55.5	61.7	59.8	53.6	55.3	53.8
Present Progressive	9.9	10.0	9.8	6.1	6.0	8.3	7.6
Past Tense	10.8	13.4	10.7	10.6	18.5*	14.6	18.6*
Past Progressive	1.4	2.7	2.6	1.4	3.0	2.1	2.5
Modal Auxiliary + Base Form of Verb[a]	12.7	13.9	11.0	18.5	13.4	14.4	12.5
Modal Auxiliary + Infinitive[a]	2.1	2.6	2.3	2.5	3.8	3.5	2.9
Variations of Present and Past Progressive[b]	1.0	1.0	1.3	.1	1.1	1.0	1.0
Miscellaneous	.8	1.2	.8	1.0	.9	.9	.9

*Mean significantly higher than for 1966 baseline data ($P < .05$). A1 baseline data are used as the basis for comparison for both B1 and A1 project children.

[a] Other than "shall" or "will."

[b] Such as "get" or "keep" + present participle; or similar auxiliary verbs + past participle.

TABLE XIII

TYPES OF ADVERBIALS
COMPARISON OF 1968 MEANS FOR PROJECT CLASSES WITH 1966 BASELINE DATA

Variable	Comparison of Means by Grade Level						
	Baseline Data (1966)			Project Children (1968)			
	A1	A2	A3	B1	A1	A2	A3
Number of Cases	59	52	60	29	50	84	28
Number of Verbs	22.1	30.0	32.5	35.3*	34.7*	35.3*	32.7
Number of Verbs Modified	12.0	16.1	17.7	16.9*	16.1*	17.6	15.5
Per Cent of Verbs Modified	54.3	53.7	54.5	47.9	46.4	50.0	47.4
Types of Adverbials							
Number of Intensifiers	.4	.8	1.1	.9	.7	.7	.4
Number of Adverbs	9.8	13.7	13.1	15.6*	14.0*	15.2	13.8
Number of Adverb Phrases	4.6	6.2	7.7	5.7	6.5*	7.2	6.3
Number of Adverb Clauses	1.7	2.0	2.3	1.6	1.9	2.3	2.3
Total Number of Adverbials	16.5	22.8	24.2	23.8*	23.1*	25.4	22.8
Ratios							
Ratio of Intensifiers/Verbs	.01	.02	.03	.02	.02	.02	.01
Ratio of Adverbs/Verbs	.36	.46	.39	.46*	.41	.43	.40
Ratio of Adverb Phrases/Verbs	.16	.15	.20	.18	.19	.20	.18
Ratio of Adverb Clauses/Verbs	.06	.06	.07	.07	.05	.06	.07
Ratio of Total Adverbials/Verbs	.59	.69	.69	.73*	.67	.71	.66
Ratio of Adverbials/Verbs Modified	1.15	1.35	1.33	1.38*	1.42*	1.41	1.38

*Mean significantly higher than for 1966 baseline data ($p < .05$). A1 baseline data are used as the basis for comparison for both B1 and A1 project children.

TABLE XIV

TYPES OF NOMINALS USED
COMPARISON OF 1968 MEANS FOR PROJECT CLASSES WITH 1966 BASELINE DATA

Variable	Comparison of Means by Grade Level						
	Baseline Data (1966)			Project Children (1968)			
	A1	A2	A3	B1	A1	A2	A3
Number of Cases	59	52	60	29	50	84	28
Number of Nominals of:							
Type Ia (single-word nominals, nouns + determiners, proper names)	31.4	41.8	44.8	47.8*	48.5*	49.0*	46.1
Type Ib (unmodified noun adjuncts)	.5	.4	.5	.4	.4	.5	.3
Type IIa (one adjective modifier + Ia or Ib)	2.8	3.8	4.8	4.6*	4.5*	4.6	4.5
Type IIc (simple prep. phrase modifier)	.5	.8	1.2	.6	1.0*	.7	.6
Type IIIb (nouns, noun adjuncts or pronouns inflected as possessives)	1.6	2.1	2.4	1.5	2.6*	2.4	2.1
All other types	1.3	1.7	3.0	1.6	1.7	2.2	1.9
Total number of nominals	38.1	50.6	56.6	56.5	58.7*	59.4*	55.5
Per cent of unmodified nominals	80.9	83.2	79.3	85.3	83.3	83.3	83.6

*Mean significantly higher than for 1966 baseline data ($p < .05$). A1 baseline data are used as the basis for comparison for both B1 and A1 project children.

TABLE XV

MEASURES OF SUBORDINATION
COMPARISON OF 1968 MEANS FOR PROJECT CLASSES WITH 1966 BASELINE DATA

Variable	Comparison of Means by Grade Level						
	Baseline Data (1966)			Project Children (1968)			
	A1	A2	A3	B1	A1	A2	A3
Number of Cases	59	52	60	29	50	84	28
Number of:							
Adverb Clauses	1.72	2.00	2.33	1.64	1.90	2.28	2.32
Adjective Clauses	.23	.23	.82	.45*	.60*	.56*	.50
Noun Clauses	.75	1.04	1.50	1.48*	1.16	1.42	1.79
Subordinate Clauses	2.70	3.27	4.65	3.57	3.66	4.26	4.61
Main and Subordinate Clauses	21.52	28.96	31.57	33.98*	34.04*	34.47*	31.65
T-units	18.60	25.62	26.40	30.41*	30.38*	30.21	27.04
T-unit Words	114.22	157.21	175.43	176.07*	176.14*	183.21*	167.07
Verbals	1.42	1.44	1.58	1.52	1.28	1.71	1.81
Ratios:							
Number of Clauses per T-unit	1.07	1.13	1.20	1.13*	1.11*	1.13	1.16
Subordination Ratio	.13	.11	.15	.11	.11	.12	.15
Average Length of Clause	4.89	5.33	5.57	4.99	5.05	5.24	5.27
Number of Verbals per T-unit	.08	.06	.06	.05	.04	.06	.07

*Mean significantly higher than for 1966 baseline data ($p < .05$), A1 baseline data are used as the basis for comparison for both B1 and A1 project classes.

TABLE XVI

MEASURES OF VARIETY
COMPARISON OF 1968 MEANS FOR PROJECT CLASSES WITH 1966 BASELINE DATA

Variable	Comparison of Means by Grade Level						
	Baseline Data (1966			Project Children (1968)			
	A1	A2	A3	B1	A1	A2	A3
Number of Cases	59	52	60	29	50	84	28
Number of:							
Predication x Verb Types Used	7.22	9.98	10.47	10.34*	11.96*	11.17	10.71
Adverbial Type x Position Combinations Used	3.80	5.00	5.10	4.83*	4.98*	5.26*	4.75
Nominal Types Used	2.90	3.87	5.12	3.00	3.60*	3.80	3.57
Nominals of Infrequently Used Types	1.32	1.67	2.97	1.59*	1.74	2.17	1.93
Different Adjectives Used	4.52	6.58	8.58	6.24*	7.16*	7.27	6.86
Types of Compounds Used	.15	.38	.47	.52*	.66*	.49	.50
Types of Verbals Used	1.03	.96	1.12	1.14	1.16	1.38*	1.46*
Number of Different Uncommon:							
Prepositions Used	1.17	1.56	2.02	.90	1.26	1.82	1.50
Adverbs Used	3.76	5.35	5.55	4.17	4.30	4.80	4.46
Intensifiers Used	.12	.27	.35	.28	.36*	.30	.18

*Mean significantly higher than for 1966 baseline data ($p < .05$). A1 baseline data are used as the basis for comparison for both B1 and A1 project classes.

The sampling of A1 project children were superior to A1 baseline data in even more language measures, e.g., A1 project children showed a significantly smaller percentage of maze material and a significantly larger percentage of T-unit words; significantly higher means for length of the three longest T-units, and for length of the three longest T-units without variations; a higher percentage of past-tense verbs; a higher ratio of adverbials to verbs modified; and a superior record on all ten variety measures, of which six are significantly superior.

The superiority of the A2 project children in comparison with baseline data, was evident on several variables, e.g., a significantly lower percentage of maze material and higher percentage of T-unit words, significantly higher mean length for the three longest T-units and three longest T-units without variations; and higher means on eight of the ten variety measures, of which two are significantly superior.

The A3 class has an inconsistent record. The percentage of maze material was significantly lower than baseline data, the past tense was used significantly more, and significantly more types of verbals were used. However, the large majority of differences were not significant, and some favored the baseline group.

On the whole, there is considerable evidence to support the second research hypothesis for primary-grade children, i.e., that children who have had the project instructional program will attain higher results on measures of oral language development.

Evidence of Progress in Language Development for Project Preschool and Kindergarten Children

Evidence of progress in language development for preschool and kindergarten "alumni" was presented in the preceding chapter section, in terms of the superiority of the B1 class over A1 baseline data. It was evident from these comparisons that B1 pupils who had had project preschool and kindergarten experience excelled in many respects A1 children who were 5-7 months older and who had had one more semester of first-grade instruction.

Two additional types of comparisons are made in this chapter section: (1) comparison of the spontaneous language of preschool and kindergarten children in 1966 and 1968; and (2) comparison of Oral Language Interview data for a sampling of project kindergarten children with a sampling of non-project children (taken from four other kindergarten classes).

Comparison of 1968 preschool and kindergarten means with baseline data. Since the Oral Language Interview could not be successfully administered to pre-primary children in 1966, no baseline Oral Language Interview data are available. Comparison of data on preschool spontaneous language revealed only two significant differences favoring the 1968 group, i.e., a larger percentage of reportage responsums and a larger number of verbals (Table XVII).

TABLE XVII

COMPARISON OF SELECTED LANGUAGE MEASURES FOR 1968 PROJECT PRESCHOOL AND KINDERGARTEN CHILDREN WITH 1966 BASELINE DATA AND 1968 NON-PROJECT CHILDREN

Variable	Preschool Means-- Spontaneous Language[a]		Kindergarten Means			
			Spontaneous Language[a]		Oral Language Interview, 1968	
	1966	1968	1966	1968	Non-project	Project
Number of Cases	23	18	23	17	18	17
Per cent of words in language sample classified as:						
Mazes	18.6	15.9	12.6	16.7	14.4	13.6
Reportage responsums	22.0	30.8*	23.3	24.4	20.8	15.9
T-units	59.5	53.5	62.8	58.9	64.7	70.4
Mean length of:						
All T-units	4.0	4.1	4.3	4.1	5.3	5.6
Three longest T-units	5.8[b]	7.7[b]	6.7[b]	8.1[b]	10.1	11.2
Three longest T-units without variations	5.2[b]	7.0[b]	6.0[b]	7.1[b]	8.2	8.8
Number of verbs	37.6	41.7	42.8	41.1	33.8	43.9
Number of verbs modified	14.2	16.3	17.5	14.9	17.3	21.9
Per cent of verbs modified	37.8	39.0	41.0	36.2	53.4	49.9
Types of adverbials:						
Number of intensifiers	1.6	1.5	.8	1.4	.7	.8
Number of adverbs	11.1	14.6	13.9	13.3	16.8	19.7
Number of adverb phrases	4.1	4.6	5.3	4.4	5.0	7.8
Number of adverb clauses	.7	.2	.8	.6	.9	1.5
Total number of adverbials	17.5	20.9	20.8	19.7	23.4	29.8

TABLE XVII (CONTINUED)

COMPARISON OF SELECTED LANGUAGE MEASURES FOR 1968 PROJECT PRESCHOOL AND KINDERGARTEN CHILDREN WITH 1966 BASELINE DATA AND 1968 NON-PROJECT CHILDREN

Variable	Preschool Means-- Spontaneous Language[a]		Kindergarten Means Spontaneous Language[a]		Oral Language Interview, 1968	
	1966	1968	1966	1968	Non-project	Project
Number of Cases	23	18	23	17	18	17
Types of adverbials (continued):						
Number of main and subordinate clauses	45.5	39.2	42.8	40.8	33.0	42.5*
T-units	43.5	37.9	41.0	39.1	30.1	39.4*
T-unit words	173.3	160.3	172.6	159.6	161.8	213.1*
Verbals	.3	1.5*	.8	1.7	1.6	1.4

*1968 mean significantly higher than for 1966 baseline data, a project mean higher than for non-project means.

[a] Samples of spontaneous speech were obtained by the use of a microphone, worn on a shoulder band, which transmitted as a miniature sending station, to a tape recorder.

[b] These measures are not directly comparable, since the 1968 analysis is based on one 300-word sample for each child, while the 1966 analysis is based on study of three 100-word samples.

There were no significant differences favoring either the 1968 or 1966 groups of kindergarten children when measures of spontaneous language were compared. In fact, the 1968 children had slightly more maze material and slightly fewer T-unit words. Since these measures were based on children's spontaneous conversation during the kindergarten day, differences in language measures may reflect only differences in children's activities in two different project years.

Comparison of project and non-project kindergarten children on Oral Language Interview. In 1968, the interviewers succeeded in holding Oral Language Interviews with project kindergarten and preschool children. In Chapter VII a comparison is made of oral language measures obtained by analyzing these interviews with corresponding measures obtained by analyzing samples of spontaneous conversation for these same children.

In Table XVII, data for a sampling of project kindergarten children are compared with those for a sampling of non-project children as a further basis for testing the second hypothesis on superior progress of project children in oral language development.

Project children do show significant superiority to non-project children with respect to number of main and subordinate clauses, number of T-units, and number of T-unit words. Evidently interviewers were able to elicit more language from the project children. Perhaps more important than sheer amount of language are the larger percentage of words in T-units, and the fact that project children averaged 11.2 words for their three longest T-units, as compared with 10.1 words for non-project children. These differences were not significant at the .05 level, however, because of the small number of cases involved in the comparison. Although project children had more verbs and adverbial modifiers, this difference is attributable to the comparatively larger amount of language elicited from the project group.

Although the second research hypothesis (on significant gains in language development) was adequately supported by research findings on primary-grade children, the data for kindergarten and preschool children are inconclusive. The smaller numbers of cases and the lower reliability of measurement at this age level are factors which contribute to the inconclusiveness of the findings. It is encouraging that differences favored project children more often when the Oral Language Interview was used. Children tend to use the most mature language patterns of which they are capable when talking with an unfamiliar adult (Chapter VII). Hence, the Oral Language Interview undoubtedly provides a better basis for judging linguistic development than do measures based on spontaneous language in preschool or kindergarten.

PART TWO

RESEARCH ON RELATIONSHIPS OF ORAL LANGUAGE MEASURES TO READING ACHIEVEMENT, GRADE, AND SEX

CHAPTER IV

RELATIONSHIPS OF ORAL LANGUAGE MEASURES TO GRADE LEVEL AND READING ACHIEVEMENT

In this chapter are summarized the findings from applying 66 oral language measures[1] in the analysis of 258 language samples, taken from recordings of Oral Language interviews with Mexican-American children in grades 1-3. For each measure, comparisons are made between mean scores for high and low readers at each of three grade levels (A1, A2 and A3). As a criterion of reading achievement, the pupil's corrected raw score on Total Reading, Stanford Primary I, was used. Those Mexican-American pupils scoring in the highest third of their grade were compared with those scoring in the lowest third on all language measures. In addition, these subgroups were combined with children in the middle third (with respect to reading achievement) so that grade-level averages could be obtained and grade-level trends could be studied. The study reported in this chapter constitutes a replication of the one reported in Chapter IX of the second interim report. Standard deviations for all measures are given in corresponding tables of Appendix B.

Results of First - Level Analysis

As explained in Chapter III, the first step in analyzing the children's oral language transcripts was to classify each word or sound under one of three categories: mazes, reportage responsums, or T-Units. This classification (plus the identification of the three longest T-Units, as well as the three longest T-units without variations) constituted the first - level analysis, as summarized in Table XVIII. The data in the first section of the table (on number of words in each category) are not comparable with the baseline study, in which each child's entire transcript was analyzed. For all other aspects of the language analysis, however, both the 1966 and 1968 data were based on samples of 300 words, if the main part of a child's Oral Language Interview (following the warm-up in Spanish and English) exceeded 300 words.

Even though the study of 1966 baseline data was completed in 1967 and reported in the second interim report (March, 1968), all references to the baseline study will be to the "1966 study," to indicate the year in which the baseline Oral Language Interview was conducted.

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[1] A few measures included in the analysis of baseline data were not obtained in 1968 because of insufficient time available for completing a more detailed analysis. All excluded measures were based on a time-consuming type-token analysis of the interview transcripts which was not undertaken during the busy summer of 1968. Measures excluded were: number of types, or different words used, number of tokens (or words in sample), type-token ratio, number of words added to type-token list, and number of expressions of tentativeness.

TABLE XVIII

FIRST-LEVEL ANALYSIS OF ORAL LANGUAGE INTERVIEW INTO T-UNITS, MAZES, AND REPORTAGE RESPONSUMS COMPARISON OF GRADE LEVEL MEANS AND COMPARISON OF MEANS FOR HIGH READERS[a] AND LOW READERS[b] IN GRADES A1, A2, A3--1968

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of cases	82	84	92	28	27	28	28	31	31
Number of words in Oral Language Interview classified as:									
Mazes	35.7	32.2	34.9	33.1	39.3	33.6	33.2	33.2	35.5
Reportage responsums	68.5	52.0*	41.2*[c]	65.7	79.3	51.6	49.1	38.9	44.2
T-units	171.7	175.7	196.3*[c]	185.4*	149.5	188.4	167.0	188.8	198.9
Total number of words	275.9	259.9	272.5	284.2	268.1	273.6	249.3	260.9	278.6
Per cent of words in Oral Language Interview classified as:									
Mazes	12.9	11.4	12.3	11.3	13.6	11.8	12.0	12.1	12.2
Reportage responsums	24.8	22.1	17.0*[c]	23.6	32.6*	19.5	23.3	17.3	17.3
T-units	62.2	66.5*	70.7[c]	65.1*	53.9	68.7	64.8	70.7	70.4
Number of T-units	30.4	29.3	30.9	32.5*	27.6	30.1	29.3	28.4	32.2
Mean length of:									
All T-units	5.6	5.9	6.5*[c]	5.8	5.3	6.2	5.6	6.9	6.2
Three longest T-units	11.0	11.6	12.8*[c]	11.2	10.6	12.3	10.5	12.7	12.5
Three longest T-units without variations	9.0	9.3	10.5*[c]	9.3	8.7	10.0*	8.4	10.2	11.2

*Mean significantly higher than that for next lowest grade level; or in comparisons within grade level (in right-hand portion of table), mean is significantly higher than for other reading group at the same grade level ($p < .05$).

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

[c] Mean significantly higher for A3 than for A1 grade ($p < .05$).

Grade-level trends. As in the study of 1966 baseline data, the percentage of words classified as reportage responsums decreased with grade level, while the percentage of words in T-Units increased (Table XVIII, as compared with Table IV of the second interim report). In both the 1966 and 1968 data, the percentage of maze material shows no significant decrease with grade level.

In both the 1966 and 1968 studies, third-grade means for the following measures significantly exceeded first-grade and second-grade means: mean length of all T-Units, 6.5 words as compared with 5.6 in first grade and 5.9 in second; mean length of the child's three longest T-Units (12.8 words in third grade as compared with 11.0 in first and 11.6 in second, mean length of the three longest T-Units without variations from standard English (10.5 words in third grade as compared with 9.0 in first and 9.3 in second).

Comparison of high-and-low reader groups. At all three grade levels, high readers had a higher percentage of words in T-Units than did low readers; only the first-grade difference however, was statistically significant. At the first and second grade levels, high readers had smaller percentages of maze material and reportage responsums; the only significant difference, however, was at the first-grade level where high-readers had only 23.6 percent of words and sounds classified as reportage responsums, as compared with 32.6 percent of low readers.

High-reader groups had consistently more favorable results on the following measures of language maturity: mean length of T-Unit, mean length of the three longest T-Units, and (for all grades but A3) mean length of the three longest T-Units without variations from standard English. Although only one of these nine comparisons was statistically significant at the .05 level, several others had t-ratios indicating significance at the .10 level. In the 1966 study, differences consistently favoring the high-reader group were found only at the second-grade level for the first-level analysis.

Types of Predication Patterns and Verbs

At each of the three grade levels, approximately five-sixths of the T-Units were of the two most common types, i.e., Type I (subject + intransitive verb) and Type IV (subject + transitive verb + object). The proportion of T-Units falling into these two common categories was approximately the same as in the 1966 study. Lobans' low group (classified by teachers as low in linguistic development[2]) had 84 percent of their communication units in these two categories at the first-grade level, and 79 percent at the third-grade level.

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[2] The lowest 24-30 subjects from groups of approximately 250 children, selected on the basis of average teachers' ratings on language ability (cumulated over at least four years). Loban, The Language of Elementary School Children, p.2.

Grade-level trends. No consistent grade level trends are evident in Table XIX except the tendency for older pupils to use more sentences of Type VI (subject holder + intransitive verb + subject). The third graders used significantly more Type VI sentences than did first graders. In the 1966 study, the only significant grade-level difference was that second-graders used significantly more Type VI sentences than first-graders. No other consistent grade level trends in use of predication patterns was found in either the 1966 or 1968 data.

Third graders use the present tense less frequently and the past tense more frequently than do younger children.

Comparisons of high- and-low-reader groups. Although the differences are not statistically significant, the high-reader groups at all three grade levels consistently used fewer Type I predications. In the 1966 study, high-reader groups used more sentences involving the predicate adjective and predicate nominative at all grade levels. In the 1968 study, there is no consistent trend in this respect.

At all three grade levels, the high-reader groups make greater use of both the present progressive and the past tenses than do low readers; the differences are statistically significant, however, at the first grade level only.

At both the first and second grade levels, the high-reader group makes less frequent use than do low-readers of the "modal auxiliary + base form of the verb"); only the second-grade difference is statistically significant. The 1966 study yields similar results at two of the three grade levels.

Types of Adverbials

The data on adverbials can be more validly compared for 1968 subgroups than in the 1966 study since the number of T-Unit words available for second-level analysis is more nearly comparable from group to group. However, one difference (i.e., between A1 high readers and A1 low readers) is sufficiently great to affect a number of other variables; that is, since the A1 high readers had 20 per cent more T-Unit words than the low readers, it is not surprising that they had significantly more verbs and adverbials.

Grade level trends. Third-graders significantly excelled first-graders with respect to: number of adverb phrases and adverb clauses, as well as total number of adverbials (Table XX). The ratio of total

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TABLE XIX

TYPES OF PREDICATION PATTERNS AND VERBS
COMPARISON OF GRADE LEVEL MEANS AND COMPARISON OF MEANS FOR HIGH READERS[a] AND LOW READERS[b] IN GRADES A1, A2, A3--1968

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	82	84	92	28	27	28	28	31	31
Percentage of predications of each type:									
Type I	40.6	42.4	38.5	38.7	43.9	39.5	44.2	36.7	40.1
Type II	5.9	7.0	6.9	7.4	4.6	6.5	8.7	5.5	8.6
Type III	6.0	4.4	4.3	4.7	6.4	5.1	4.0	4.3	4.1
Type IV	45.0	42.5	46.4	47.5	42.8	44.0	40.5	50.0	43.6
Type V	.6	.9	.7	.3	.6	1.5	.4	.9	.5
Type VI	1.8	2.8	3.2[c]	1.5	1.6	3.4	2.2	2.9	3.1
Percentage of verbs of each type:									
Present tense	56.3	56.3	52.4*[c]	56.4	64.0	56.3	56.6	54.8	55.6
Present progressive	5.2	7.9*	8.1[c]	6.5*	3.7	8.2	6.1	8.1	7.5
Past tense	15.3	14.0	18.3*	16.3*	10.0	16.2	12.1	15.5	15.0
Past progressive	2.7	1.7	3.0*	2.3	1.6	1.9	1.1	2.4	3.2

TABLE XIX (CONTINUED)

TYPES OF PREDICATION PATTERNS AND VERBS
COMPARISON OF GRADE LEVEL MEANS AND COMPARISON OF MEANS FOR HIGH READERS[a] AND LOW READERS[b] IN GRADES A1, A2, A3--1968

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	82	84	92	28	27	28	28	31	31
Percentage of verbs of each type: (cont'd)									
Modal auxiliary + base form of verb[d]	15.4	15.4	12.1	13.7	16.5	11.7	20.3*	13.6	11.7
Modal auxiliary + infinitive[d]	3.1	3.3	3.4	3.4	2.4	4.1	2.7	3.3	3.5
Variations of present and past gressive[e]	1.0	.8	1.2	1.0	.8	1.0	.5	1.3	1.5
Miscellaneous	.9	.8	1.5	.7	1.0	.9	.6	1.4	2.0

*Mean significantly higher than that for next lowest grade level; or in comparisons within grade level (in right-hand portion of table), mean is significantly higher than for other reading group at the same grade level ($p < .05$).

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

[c] Mean significantly higher for A3 than for A1 grade ($p < .05$).

[d] Other than "shall" or "will".

[e] Such as "get" or "keep" + present participle; or similar auxiliary verbs + past participle.

TABLE XX
TYPES OF ADVERBIALS
COMPARISON OF GRADE LEVEL MEANS AND COMPARISON OF MEANS FOR HIGH READERS[a] AND LOW READERS[b] IN GRADES A1, A2, A3--1968

	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	82	84	92	28	27	28	28	31	31
Number of verbs	34.8	34.6	37.1	37.0*	32.2	35.5	34.1	35.7	37.7
Number of verbs modified	16.3	17.4	17.7	17.6	14.1	17.6	16.9	16.5	17.8
Per cent of verbs modified	46.8	50.3	47.7	47.6	43.8	49.6	49.5	46.2	47.4
Types of adverbials:									
Number of intensifiers	.8	.7	.7	.9	.7	.6	.5	.7	.9
Number of adverbs	14.3	15.2	14.9	15.6	12.1	16.2	14.5	13.9	14.8
Number of adverb phrases	6.1	7.0	7.9[c]	6.5	5.3	7.7	6.4	7.1	8.3
Number of adverb clauses	1.7	2.1	2.6[c]	1.9	1.7	2.4	1.8	2.6	2.8
Total number of adverbials	22.9	25.0	26.1[c]	25.0*	19.9	26.8	23.2	24.3	26.8
Ratios:									
Ratio of intensifiers/verbs	.02	.02	.02	.02	.03	.01	.02	.02	.02
Ratio of adverbs/verbs	.42	.44	.40	.44	.38	.44	.45	.37	.40
Ratio of adverb phrases/verbs	.18	.19	.21	.17	.18	.21	.17	.19	.22
Ratio of adverb clauses/verbs	.05	.06	.07[c]	.05	.04	.06	.05	.07	.07
Ratio of total adverbials/verbs	.67	.71	.70	.68	.61	.72	.69	.65	.71
Ratio of adverbials/verbs modified	1.39	1.41	1.44	1.40	1.39	1.47	1.37	1.49	1.40

*Mean significantly higher than that for next lowest grade level; or in comparisons with grade level (in right-hand portion of table), mean is significantly higher than for other reading group at the same grade level ($p < .05$).

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

[c] Mean significantly higher for A3 than for A1 grade ($p < .05$).

adverbials to verb modified increased consistently with grade level, but the differences were not statistically significant.

Comparison of high-and low-reader groups. The only significant differences found in many comparisons of high and low readers in Table XX are two differences which could be attributed to the 20 per cent difference previously noted between A1 high- and A1 low- readers in terms of number of T-Unit words available for analysis.

In both the 1966 and 1968 studies, high readers excel low readers at the second and third grade levels with respect to complexity of adverbial constructions, i.e., the ratio of total adverbials to verbs modified.

Types of Nominals.

Malabar children use relatively few modified nominals; and those modifications which do occur usually involve a single adjective or a possessive construction (Table XXI).

Grade-level trends. The slight superiority of the third-grade children in total number of nominals can be accounted for by the fact that third-graders averaged about 11 per cent more T-Unit words than did the younger children. The percentages of unmodified nominals are comparable from grade to grade; the expected decrease with grade level occurs but is not statistically significant.

The number of Type IIa nominals (one adjective modifier) and the number of infrequently used nominals are significantly higher for third graders, as compared with first-grade children; and the differences are larger than would arise from differences in sample size.

Comparison of high and low reader groups. These data provide little evidence of superiority of high-readers over low-readers in the use of nominals. Two of the four significant differences at the first grade level are attributable to differences in sample size. The mean number of possessive constructions is almost twice as large for the high-reader group as compared with the low readers; and the percentage of unmodified nominals is significantly smaller. At the second and third grade levels, there are no significant differences.

Measures of Subordination

Malabar children use relatively few subordinate clauses (Table XXII). As in Loban's study and in the Malabar 1966 study, the number of adjective clauses was smallest and the number of adverb clauses was relatively large.

TABLE XXI

TYPES OF NOMINALS USED
COMPARISON OF GRADE LEVEL MEANS AND COMPARISON OF MEANS FOR HIGH READERS[a] AND LOW READERS[b] IN GRADES A1, A2, A3--1968

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	82	84	92	28	27	28	28	31	31
Number of nominals of:									
Type Ia (single-word nominals, nouns + determiners, proper names)	47.5	47.2	51.2	51.4*	42.6	50.0	45.8	48.4	53.0
Type Ib (unmodified noun adjuncts)	.4	.5	.3	.5	.5	.3	.3	.3	.2
Type IIa (one adjective modifier + Ia or Ib)	4.1	4.3	5.0[c]	4.1	2.9	4.6	3.8	5.3	4.5
Type IIc (simple prepositional phrase modifier)	1.0	.7	1.0	1.1	.8	.7	.8	1.1	1.0
Type IIIb (nouns, noun adjuncts or pronouns inflected as possessives)	2.3	2.5	2.3	2.9*	1.5	3.1	2.0	2.1	2.3
All other types	1.7	2.1	2.8*[c]	1.9	1.4	2.2	2.2	2.7	2.7
Total number of nominals	57.0	57.3	62.6	61.9*	49.7	60.9	54.9	59.9	63.7
Per cent of unmodified nominals	84.0	83.2	82.3	83.8	86.7*	82.6	84.0	81.3	83.5

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*Mean significantly higher than that for next lowest grade level; or in comparisons within grade level (in right-hand portion of table), mean is significantly higher than for other reading group at the same grade level ($p < .05$).

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

[c] Mean significantly higher for A3 than for A1 grade ($p < .05$).

TABLE XXII

MEASURES OF SUBORDINATION
COMPARISON OF GRADE LEVEL MEANS AND COMPARISON OF MEANS FOR HIGH READERS[a] AND LOW READERS[b] IN GRADES A1, A2, A3--1968

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	82	84	92	28	27	28	28	31	31
Number of:									
Adverb clauses	1.68	2.08	2.61^{c}	1.89	1.70	2.36	1.78	2.65	2.77
Adjective clauses	.68	.58	.86	.68	.63	.50	.61	.81	.71
Noun clauses	1.32	1.33	1.74	.96	1.33	1.54	.96	1.87	1.52
Subordinate clauses	3.68	3.99	5.21*	3.53	3.66	4.40	3.35	5.33	5.00
Main and subordinate clauses	34.06	33.26	36.07	36.07	31.29	34.51	32.64	33.81	37.23
T-units	30.38	29.27	30.86	32.54*	27.63	30.11	29.29	28.48	32.23
T-unit words	171.72	175.65	196.34*^{c}	185.43*	149.52	188.36	167.24	188.81	198.87
Verbals	1.35	1.87	1.70	1.18	1.26	2.39*	1.32	1.86	1.57
Ratios:									
Number of clauses per T-unit	1.11	1.13	1.17*^{c}	1.11	1.12	1.14	1.13	1.18	1.16
Subordination ratio	.11	.12	.14^{c}	.10	.12	.13*	.10	.15*	.13
Average length of clause	4.94	5.11	5.52*^{c}	5.15*	4.70	5.43*	4.91	5.54	5.39
Number of verbals per T-unit	.04	.06*	.06^{c}	.04	.05	.08*	.05	.07	.05

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*Mean significantly higher than that for next lowest grade level; or in comparisons within grade level (in right-hand portion of table), mean is significantly higher than for other reading group at the same grade level ($p < .05$).

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

[c] Mean significantly higher for A3 than for A1 grade ($p < .05$).

Grade-level trends. As with the 1966 data, Table XXII reveals considerable improvement with grade level in the use of subordination. The mean number of subordinate clauses increases from 3.68 in the first grade to 5.21 in the third grade; the difference is statistically significant. At the third-grade level, the ratio of clauses to T-Units is 1.17; in other words, 17 per cent of the T-Units include a subordinate clause. At the first grade level, only 11 per cent do; the difference is statistically significant. The mean number of noun clauses and adjective clauses increased 32 per cent and 26 per cent respectively from the first to the third grades. The number of adverb clauses (the most frequent type in both the 1966 and 1968 studies) increase significantly with grade level, with third graders using 55 per cent more adverb clauses than do first graders. Third graders significantly excelled both first and second graders with respect to average length of clause.

Comparison of high- and low-reader groups. At both the second and third grade levels, at which reading can be more reliably measured by standardized tests, the high-reader group uses more subordinate clauses than does the low-reader group. Although these differences are not statistically significant, they are consistent with the 1966 study, in which the high-reader group excelled the low-reader group at all three grade levels. Moreover, the differences in subordination ratio are statistically significant. At two of the three grade levels, the high-reader group excels the low-reader group in the number of adverb, adjective, and noun clauses used. Although these differences are not statistically significant, they are consistent with the 1966 study, in which differences favoring the better readers were found at all three grade levels.

At both the second and third grade levels, the high-reader group excels the low-reader group with respect to mean number of verbals used and number of verbals per T-Unit; at the second-grade level these differences are statistically significant.

At all three grade levels, the high-reader group excels with respect to average length of clause; at the first and second grade levels these differences are statistically significant.

Measures of Variety

As a bilingual child gains command of the language of instruction, it seems likely that he would show evidence of his increased competency through greater flexibility of expression and the use of a greater variety of syntactical structures. As explained in Chapter III, several different measures of variety have been developed especially for this study.

Grade-level trends. Third-graders significantly excel second-graders with respect to number of predication x verb types used (Table XXIII). Consistent improvement with grade level is noted in number of combinations of adverbial types used and positions of these movables within the sentence; only the difference between first and third graders, however, was significant.

Three variety measures were used in the study of nominals: (1) the number of nominal types used, (2) the number of nominals of infrequently used types, and (3) the number of different adjectives used as modifiers in nominal constructions. Each of these three variety measures increase consistently with grade level, as they did in the study of 1966 data. Third graders significantly excel first-graders in all three of these variety measures; however, it was only with respect to number of nominals of infrequently used types that third graders significantly excel second graders. Grade-level trends are inconsistent with respect to variety in the use of compounds and verbals.

In the language analysis, the analyst tallied the number of times certain commonly used prepositions, adverbs and intensifiers were used. Whenever uncommon[3] prepositions, adverbs, and intensifiers were used, these were written on the child's summary sheet. A consistent increase with grade level was found in the use of uncommon prepositions and adverbs. However, the only statistically significant difference was the one favoring third-grade children, as compared with first grade, in the use of uncommon prepositions.

Comparison of high- and low-reader groups. For the first two variety measures listed in Table XXIII, differences between reader groups are small and inconsistent in direction. These measures also failed to differentiate between reader groups when the 1966 data were analyzed.

With one exception, the comparisons involved in the study of nominal constructions (three variables at three grade levels) favored the high-reader group. High readers excel in number of nominal types used and in number of different adjectives used at all three grade levels; with respect to number of nominals of infrequently used types, high readers excel at the first and second grade level. This trend toward superiority in nominal constructions among better readers was consistently evident in the 1966 study also.

With respect to variety in the use of compounds and verbals, the data are inconsistent. Although the high-reader group excels at the Al level in variety of compounds used, differences at the second and third

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[3] Commonly used prepositions printed on the summary sheet were: at, in, on, to and with. Commonly used adverbs were: here, not, now, off, out, and there. Commonly used intensifiers were: real (really), right, so.

TABLE XXIII

MEASURES OF VARIETY
COMPARISON OF GRADE LEVEL MEANS AND COMPARISON OF MEANS FOR HIGH READERS[a] AND LOW READERS[b] IN GRADES A1, A2, A3--1968

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	82	84	92	28	27	28	28	31	31
Number of:									
Predication x verb types used	11.77	11.12	12.16*	11.82	10.96	11.50	10.79	11.87	12.23
Adverbial type x position combinations used	4.77	5.10	5.26[c]	5.00	4.37	5.39	4.75	5.13	5.42
Nominal types used	3.56	3.79	4.16[c]	3.86	3.15	4.11	3.54	4.13	4.00
Nominals of infrequently used types	1.70	2.12	2.82*[c]	1.89	1.37	2.21	2.18	2.68	2.74
Different adjectives used	6.79	7.10	8.11[c]	7.54*	5.41	7.46	6.68	8.03	7.58
Types of compounds used	.62	.46	.57	.82*	.37	.57	.54	.58	.65
Types of verbals used	1.22	1.52	1.40	1.07	1.15	1.89	1.21	1.65	1.26
Number of different uncommon:									
Prepositions used	1.32	1.67	1.75[c]	1.18	1.41	2.00*	.96	1.55	1.97
Adverbs used	4.29	4.71	4.86	4.61	3.56	5.46*	3.93	5.32	4.81
Intensifiers used	.35	.24	.36	.50	.26	.18	.21	.23	.39

*Mean significantly higher than that for next lowest grade level; or in comparisons within grade level (in right-hand portion of table), mean is significantly higher than for other reading group at the same grade level ($p < .05$).

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

[c] Mean significantly higher for A3 than for A1 grade ($p < .05$).

grade level are small and inconsistent. Although the high-reader group uses much greater variety in verbals than did low readers at the second and third grade level, these differences are not statistically significant.

The high-reader groups consistently excel in number of different uncommon adverbs used; the difference at the second-grade level is statistically significant. For the other function words (uncommon prepositions and intensifiers), the findings are inconsistent.

Variations from Standard English

The study of children's variations from standard English excluded phonic and morphemic variations. Syntactical variations only were studied; these were grouped into Loban's eighteen categories[4] of deviations from Standard English, with one new category added: omission of pronouns (which occurs much more frequently among these bilingual children than among other children their age). For ease in interpretation and greater comparability among groups, the data presented in Table B-7 of the Appendix have been translated into variations per thousand words.

Grade-level trends. There is a consistent decrease with grade-level in the total number of verb variations, with the large decrease occurring between grades 1 and 2. Second and third-grade children have significantly fewer verb variations than do the first-graders (Table XXIV).

A large percentage of the total variations (approximately three-eighths) are classifiable as verb variations. Of these verb variations, approximately two-thirds are classifiable into two categories: errors in the use of the third person singular and nonstandard use of verb forms. With respect to errors in the use of the third person singular, there is a consistent decrease with grade level; these differences, however, are not statistically significant at the .05 level. With respect to nonstandard use of verb forms, both second and third graders show significantly fewer errors than first graders.

Third graders make significantly fewer errors than first graders with respect to inconsistency in use of tense and omission of auxiliary verbs; they make significantly fewer errors than second graders, involving omission of the verb "to be".

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[4] Loban, Problems in Oral English, p. 7. The list of variations is given in Appendix A of the second interim report.

TABLE XXIV

NUMBER OF VARIATIONS FROM STANDARD ENGLISH PER THOUSAND WORDS COMPARISON OF GRADE LEVEL MEANS AND COMPARISON OF MEANS FOR HIGH READERS[a] AND LOW READERS[b] IN GRADES A1, A2, A3--1968

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	55	56	62	28	27	28	28	31	31
Verb variations:									
Lack of agreement of subject and verb:									
Forms of verb "to be"	.94	.83	1.89	.87	1.03	1.00	.66	2.62	1.16
Other verbs									
3rd person singular	9.66	7.77	6.62	5.89*	13.58	5.82	9.72	6.48	6.75
Other forms	.36	.21	.49	.44	.27	.20	.22	.20	.77
Inconsistency in use of tense	3.84	3.40	2.47*[c]	2.84*	4.88	2.61*	4.19	2.22	2.71
Omission of auxiliary verbs	2.23	.83*	.70[c]	2.62	1.80	1.00	.66	.81	.58
Nonstandard use of verb forms	12.02	6.71*	8.38[c]	10.50*	13.60	4.60*	8.82	7.24*	9.51
Omission of verb "to be"	2.86	3.59	1.97*	2.41	3.34	3.63	3.54	1.63	2.31
Total number of verb variations	31.91	23.34*	22.52[c]	25.57*	38.50	18.86*	27.81	21.38	23.79
Pronoun variations:									
Nonstandard or confusing use	2.29	1.47	1.18	3.27*	1.29	1.62	1.32	.81	1.54
Omission	12.04	6.29*	3.98[c]	9.83*	14.33	4.84*	7.73	5.05	6.37
Syntactic confusion:									
Ambiguous placement of a word, phrase, or clause	.41	.42	.89	.22	.51	.40	.44	1.01	.77
Awkward arrangement or incoherence	5.00	5.19	3.46	4.37	5.65	4.39	5.98	3.24	3.68
Omission (except of auxiliary verbs or pronouns)	8.64	6.95	5.72[c]	7.02	10.27	4.39*	9.50	5.65	5.79
Unnecessary repetition	7.32	7.91	5.41*[c]	6.70	7.96	9.83	5.98	4.45	6.37

TABLE XXIV (CONTINUED)

NUMBER OF VARIATIONS FROM STANDARD ENGLISH PER THOUSAND WORDS COMPARISON OF GRADE LEVEL MEANS AND COMPARISON OF MEANS FOR HIGH READERS[a] AND LOW READERS[b] IN GRADES A1, A2, A3--1968

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	55	56	62	28	27	28	28	31	31
Other variations:									
Nonstandard connectives									
Prepositions	2.00	1.47	1.71	1.96	2.05	1.39	1.55	1.47	1.94
Conjunctions	.94	.67	.30	.87	1.03	.00*	1.33	.40	.19
Nonstandard modification									
Adjectival	2.00	1.64	1.89	1.96	2.06	2.40	.88	1.83	1.94
Adverbial	2.98	3.96	2.27*	2.62	3.35	4.61	3.31	1.83	2.71
Nonstandard noun forms	2.73	1.90	1.85	2.39	3.09	1.80	1.99	.81*	2.89
Double negatives and nonstandard use of possessives	1.26	.94	.70	1.74	.77	1.00	.88	1.01	.39
Total number of variations	79.52	62.15	51.88[c]	68.52*	90.86	55.53*	68.70	48.76*	58.37

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*Mean significantly superior to that for next lowest grade level; or in comparisons within grade level (in right-hand portion of table), mean is significantly superior to that for other reading group at the same grade level ($p < .05$).

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

[c] Mean significantly superior for A3 as compared with A1 pupils ($p < .05$).

Next in frequency to verb variations for these bilingual pupils are errors classifiable under the heading of "syntactic confusion." With respect to "awkward arrangement or incoherence," third graders have fewer variations than both first and second graders. There is a consistent, but not statistically significant, decrease with grade level. Data on omission of words[5] show consistent improvement with grade level, with the third graders significantly excelling first graders. With respect to unnecessary repetition of words or phrases, the third graders are significantly better than both first and second graders.

Pronoun variations rank next in frequency. Omission of pronouns markedly declines with grade level, with first graders having twelve variations per thousand words as compared with only one-third as many for third graders. Both second and third graders significantly excel first graders. With respect to "nonstandard or confusing use of pronouns," variations consistently decrease with grade level; but the differences are not statistically significant at the .05 level.

Approximately five-sixths of all variations are classifiable under the three major headings already discussed; i.e., verb variations, syntactic confusion, and pronoun variations. Third grade pupils do better than younger pupils on all six types classifiable under "other variations." However, the only significant difference is the one favoring third graders, as compared with second graders, on "nonstandard adverbial modifiers."

Comparison of high- and low-reader groups. At each of the three grade levels, the high-reader groups has a significantly smaller number of variations from standard English than the low-reader group.

In number of verb variations, the high-reader group consistently excels the low-reader group at all three grade levels; at the first and second grade levels, these differences are statistically significant. The two most frequent types of verb variations are errors in the use of the third person singular and nonstandard use of verb forms. For both of these common types of verb variations, the high-reader group consistently excels; for nonstandard use of verb forms, differences at all grade levels are statistically significant. For variations in the use of the third person singular, the first-grade difference is statistically significant at the .05 level, and the second-grade difference is large and almost statistically significant. In inconsistency in the use of tense, high readers excel at all grade levels; differences at both the first and second grade levels are statistically significant. For the other types of verb variations the findings are inconsistent.

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[5] Excluding pronouns and auxiliary verbs which are tabulated under other categories.

For two of the four types of syntactic confusion, high readers consistently show fewer variations than do low readers; these are: "awkward arrangement or incoherence" and omission of words[6]. Only one of these differences, however, is statistically significant, i.e., for second grade high readers excelling low readers with respect to "omission of words."

The high-reader group consistently excels the low-reader group at all three grade levels, with respect to "omission of pronouns"; differences at the first and second grade level are statistically significant. The findings with respect to "nonstandard or confusing use of pronouns" and those with respect to "other variations" are inconsistent.

Results of Correlation Study

In the last line of Table B-20 are shown the correlations of 27 oral language variables with corrected raw score in Total Reading, Stanford Primary I. The sample for this correlation study included 74 pupils in three project classes (A2, B3 and A3 grades). Only two language measures correlated significantly with reading achievement: (1) score on the Malabar Vocabulary Test[7], .45 and (2) mean length of the child's T-units, .26. Since these two variables correlated only .19 with each other and each has a negligible correlation with chronological age (which correlates .25 with reading within this narrow age range), it would seem that information on only these three variables would predict the child's reading achievement as well as data based on the more elaborate second-level analysis. These variables are: (1) degree to which the words in the child's reader are in his oral English vocabulary (as measured by the Malabar Vocabulary Test), (2) the average length of the T-units he used in his oral language interview, and (3) his chronological age in months.

Data from second-level analysis of the child's oral language may have greater meaning as direct evidence of his increasing ability to understand, and express himself in the language of instruction. As the child gets older, these abilities will have increasing significance for him as he learns to communicate more clearly, and more effectively in oral reports and in written stories, themes and reports.

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[6] Excluding pronouns and auxiliary verbs which are tabulated under other categories.

[7] The Malabar Vocabulary Test as developed by the research staff to test the child's knowledge of words in the primary-grade reading series used at Malabar. Procedures followed in the construction of this test are reported in Chapter VI.

CHAPTER V

SEX DIFFERENCES IN ORAL LANGUAGE DEVELOPMENT

A number of research studies[1] have shown a tendency for girls to be somewhat superior to boys in many aspects of language development. Several reasons have been suggested for these sex differences, e.g., cultural encouragement of girls to defend or assert themselves verbally rather than through physical aggression; cultural encouragement of girls in talking, reading, and other sedentary activities; the tendency of girls to spend more time in conversing with mother and less time in outdoor play. In order to see what sex differences, if any, might be found for these bilingual Mexican-American children. data on all language measures were summarized separately for boys and girls.

First-Level Analysis

In Table XXV, results are presented from the first-level analysis of language samples from 258 Oral Language Interviews; means are given for each language measure for each of six subgroups; i.e., groups of boys and girls within each of three grade levels.

Girls have smaller percentages of maze material, but only the second-grade difference is large enough to be statistically significant. Neither boys nor girls consistently excel with respect to either of the other two categories, i.e., percentage of words in reportage responsums or in T-Units.

At all three grade levels, boys are slightly superior to girls with respect to mean length of their three longest T-Units which contained no variations from Standard English; none of the differences, however, are statistically significant at the .05 level. Results with respect to the other two measures (mean length of all T-Units and mean length of the child's three longest T-Units) show no consistent sex differences.

Types of Predication Patterns and Verbs

There are a number of interesting differences between boys and girls with respect to types of predication patterns and verbs (Table XXVI). These differences may reflect differences in style rather than language maturity.

Boys consistently use a higher percentage of Type I sentences (subject + intransitive verb); these differences are statistically

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[1] Dorothea McCarthy: "Language Development in Children", Manual of Child Psychology. 2nd ed. Edited by Leonard Carmichael. New York: John Wiley and Sons, Inc., 1954.

TABLE XXV

FIRST-LEVEL ANALYSIS OF ORAL LANGUAGE INTERVIEW INTO T-UNITS, MAZES AND REPORTAGE RESPONSUMS: COMPARISON OF MEANS FOR BOYS AND GIRLS IN GRADES A1, A2, A3

Variable	Comparison of Means for Boys and Girls					
	A1		A2		A3	
	Boys	Girls	Boys	Girls	Boys	Girls
Number of cases	43	39	43	41	52	40
Number of words in Oral Language Interview classified as:						
Mazes	37.7	33.6	36.8	27.3	35.9	33.6
Reportage responsums	76.2*	60.0	50.2	53.9	43.0	38.9
T-units	172.1	171.3	186.4	164.4	195.3	197.7
Total number of words	286.0	264.9	273.4	245.6	274.2	270.2
Per cent of words in Oral Language Interview classified as:						
Mazes	13.2	12.7	13.1*	9.7	12.4	12.2
Reportage responsums	26.6	22.7	20.0	24.4	17.4	16.5
T-units	60.2	60.9	67.0	65.8	70.2	71.3
Number of T-units	31.3	29.4	31.0	27.4	30.7	31.1
Mean length of:						
All T-units	7.0	5.6	6.0	5.8	6.4	6.7
Three longest T-units	10.9	11.1	12.2	11.0	12.7	12.9
Three longest T-units without variations	9.3	8.6	9.6	8.9	10.8	10.1

*Mean significantly higher than for other sex at the same grade level ($p < .05$)

TABLE XXVI

TYPES OF PREDICATION PATTERNS AND VERBS: COMPARISON OF MEANS FOR BOYS AND GIRLS IN GRADES A1, A2, A3

Variable	Comparison of Means for Boys and Girls					
	A1		A2		A3	
	Boys	Girls	Boys	Girls	Boys	Girls
Number of Cases	43	39	43	41	52	40
Percentage of predications of each type:						
Type I (Subject + intransitive verb)	43.9*	36.0	45.9*	38.7	43.2*	32.5
Type II (Subject + linking verb + predicate adjective)	5.4	7.1	5.4	8.7	5.1	9.2*
Type III (Subject + linking verb + predicate nominal)	4.9	7.6	4.3	4.5	4.3	4.5
Type IV (Subject + verb + object)	43.0	47.0	41.0	44.1	42.6	51.5*
Type V (Subject + verb + indirect object + object)	.5	.8	.5	1.2	.8	.6
Type VI (Subject holder + intransitive verb + subject)	2.4	1.5	2.8	2.8	4.2*	2.0
Percentage of verbs of each type:						
Present tense	56.1	56.6	53.4	59.3	52.5	52.3
Present progressive	5.0	5.9	8.6	7.1	9.3*	6.5
Past tense	16.4	14.4	15.3	12.6	15.7	21.8*
Past progressive	3.5	1.8	1.9	1.5	3.0	3.1
Modal auxiliary + base form of verb[a]	14.1	15.6	15.7	15.1	13.6	10.1
Modal auxiliary + infinitive[a]	2.9	3.7	3.1	3.5	2.8	4.2
Variations of present and past progressive[b]	1.1	1.0	1.0	.6	1.4	1.0
Miscellaneous	1.2	.8	1.2*	.4	1.7	1.1

*Mean significantly higher than for other sex at the same grade level ($p < .05$).

[a] Other than "shall" or "will".

[b] Such as "get" or "keep" + present participle; or similar verbs + past participle.

significant at all three grade levels. On the other hand, girls consistently use more sentences of Types II and IV, with the differences at the third grade level being statistically significant. (In Type II sentences, a linking verb is followed by a predicate adjective; while in Type IV sentences, a transitive verb is followed by a direct object).

The data on use of tenses are too inconsistent across grade levels to justify any statements about sex differences.

Types of Adverbials

The findings on use of adverbials are presented in Table XXVII. Boys consistently excel girls at all three grade levels with respect to number and percentage of verbs modified. None of these differences, however, are significant at the .05 level.

Means consistently favoring boys at all three grade levels are found for: number of adverbs, number of adverb phrases, total number of adverbials, the ratio of adverbs/verbs, the ratio of adverb phrases/verbs, the ratio of total adverbs/verbs, and the ratio of adverbials to verbs modified. At the third grade level, the differences for two of these variables (i.e., the ratio of adverb phrases and total adverbials to verbs) are statistically significant.

Types of Nominals

Few of the differences in Table XXVIII on types of nominals are statistically significant. Girls consistently have lower (or superior) means on per cent of unmodified nominals. They consistently excel boys in the number of possessive constructions used. At the third grade level these differences are statistically significant.

Measures of Subordination

Table XXIX summarizes sex difference with respect to use of measures of subordination. At both the first and third grade levels, there is negligible difference between boys and girls with respect to number of T-unit words; at the second grade level, however, the boys have 11 per cent more T-unit words than girls.

With respect to the use of specific types of clauses (i.e., adverb, adjective, and noun clauses), neither boys nor girls show consistent superiority at the three grade levels studied. For example, third grade girls use significantly more noun clauses than do boys; however, boys excel at the second grade level; and at the first grade level, the means for boys and girls are almost identical.

At two of the three grade levels (first and third), girls excel with respect to mean number of verbals used and also the number of

TABLE XXVII

TYPES OF ADVERBIALS:
COMPARISON OF MEANS FOR BOYS AND GIRLS IN GRADES A1, A2, A3

Variable	Comparison of Means for Boys and Girls					
	A1		A2		A3	
	Boys	Girls	Boys	Girls	Boys	Girls
Number of cases	43	39	43	41	52	40
Number of verbs	35.5	34.0	37.0	32.1	36.6	37.8
Number of verbs modified	17.4	15.1	18.6	16.0	18.7	16.4
Per cent of verbs modified	49.0	44.4	50.2	49.8	51.1	43.4
Types of adverbials						
Number of intensifiers	.7	.8	.9	.5	.8	.7
Number of adverbs	15.2	13.3	16.0	14.4	15.8	13.7
Number of adverb phrases	4.3	4.0	4.5	4.4	4.2	3.6
Number of adverb clauses	1.6	1.8	2.3	1.9	2.6	2.7
Total number of adverbials	21.8	19.9	23.7	21.2	23.4	20.7
Ratios						
Ratio of intensifiers/verbs	.02	.02	.02*	.01	.02	.02
Ratio of adverbs/verbs	.43	.41	.45	.44	.42	.36
Ratio of adverb phrases/verbs	.19	.17	.21	.18	.23*	.17
Ratio of adverb clauses/verbs	.04	.05	.06	.05	.07	.07
Ratio of total adverbials/verbs	.68	.65	.74	.68	.74*	.62
Ratio of adverbials/verbs modified	1.52	1.40	1.45	1.37	1.47	1.40

*Mean significantly higher than for other sex at the same grade level ($p < .05$).

TABLE XXVIII

TYPES OF NOMINALS USED:
COMPARISON OF MEANS FOR BOYS AND GIRLS IN GRADES A1, A2, A3

Variable	Comparison of Means for Boys and Girls					
	A1		A2		A3	
	Boys	Girls	Boys	Girls	Boys	Girls
Number of cases	43	39	43	41	52	40
Number of nominals of:						
Type Ia (single-word nominals, nouns + determiners, proper names)	48.0	47.1	50.5	43.7	51.9	50.1
Type Ib (unmodified noun adjuncts)	.5	.3	.5	.4	.4	.2
Type IIa (one adjective modifier + Ia or Ib)	3.6	4.6	4.7	3.9	4.8	5.5
Type IIc (simple prepositional phrase modifier)	.9	1.0	.9	.6	1.0	1.1
Type IIIb (nouns, noun adjuncts or pronouns inflected as possessives)	2.0	2.6	2.1	2.9	1.5	3.2*
All other types	1.6	1.8	2.2	2.0	2.4	3.3
Total number of nominals	56.6	57.4	60.9	53.5	62.0	63.4
Per cent of unmodified nominals (Ia + Ib)	85.5	82.6	83.7	82.4	84.3*	79.3

*Mean significantly higher than for other sex at the same grade level ($p < .05$).

TABLE XXIX

MEASURES OF SUBORDINATION:
COMPARISON OF MEANS FOR BOYS AND GIRLS IN GRADES A1, A2, A3

Variable	Comparison of Means for Boys and Girls					
	A1		A2		A3	
	Boys	Girls	Boys	Girls	Boys	Girls
Number of cases	43	39	43	41	52	40
Number of:						
Adverb clauses	1.53	1.79	2.29	1.88	2.58	2.65
Adjective clauses	.58	.79	.79	.37	.75	1.00
Noun clauses	1.33	1.31	1.56	1.10	1.37	2.23*
Subordinate clauses	3.49	3.89	4.64	3.35	4.70	5.88
Main and subordinate clauses	34.70	33.33	35.91	30.88	35.19	36.83
T-units	31.26	29.41	31.05	27.41	30.69	31.08
T-unit words	172.07	171.33	186.37	164.41	195.31	197.68
Verbals	1.05	1.69*	1.93	1.80	1.52	1.92
Ratios						
Number of clauses per T-unit	1.12	1.13	1.14	1.11	1.16	1.20
Subordination ratio	.10	.12	.13	.11	.13	.16*
Average length of clause	4.94	5.08	5.05	5.17	5.61	5.39
Number of verbals per T-unit	.03	.06*	.06	.06	.05	.06

*Mean significantly higher than for other sex at the same grade level ($p < .05$).

verbals per T-unit; at the first-grade level these differences are statistically significant. The findings with respect to average length of clause are inconsistent.

Measures of Variety

The comparisons in Table XXX on measures of variety tend to favor the boys. With respect to the number of combinations of predication and verb types used, boys consistently excel at all three grade levels; the second-grade difference is statistically significant. With respect to the use of both uncommon prepositions and adverbs, boys excel at all three grade levels; the third-grade difference on use of uncommon prepositions is statistically significant.

Findings with respect to number of adverbial type x position combinations used are inconsistent from one grade level to another; only the difference favoring boys at the third-grade level is statistically significant.

With respect to number of nominal types used, girls have higher averages on the first- and third-grade levels, with the third-grade difference being statistically significant. On the number of different adjectives used, boys have higher means at the second- and third-grade levels, with the third-grade difference being significant. The other measures of variety show no significant differences.

TABLE XXX

MEASURES OF VARIETY: COMPARISON OF MEANS FOR BOYS AND GIRLS IN GRADES A1, A2, A3

Variable	Comparison of Means for Boys and Girls					
	A1		A2		A3	
	Boys	Girls	Boys	Girls	Boys	Girls
Number of cases	43	39	43	41	52	40
Number of:						
Predication x verb types used	12.33	11.15	11.98*	10.22	12.40	11.85
Adverbial type x position combination used	4.67	4.87	5.23	4.95	5.21*	4.34
Nominal types used	3.44	3.69	3.81	3.76	4.02	8.95*
Nominals of infrequently used types	1.56	1.85	2.21	2.02	2.44	3.30
Different adjectives used	6.33	7.31	7.44	6.73	7.46*	5.33
Types of compounds used	.65	.59	.42	.51	.48	.68
Types of verbals used	.98	1.49	1.63	1.41	1.35	1.48
Number of different uncommon:						
Prepositions used	1.40	1.23	1.70	1.63	1.98*	1.45
Adverbs used	4.37	4.21	5.21	4.20	5.13	4.50
Intensifiers used	.33	.38	.26	.22	.29	.45

*Mean significantly higher than for other sex at the same grade level ($p < .05$).

PART THREE

RESEARCH ON INTERRELATIONSHIPS AMONG LANGUAGE MEASURES

CHAPTER VI

INTERCORRELATIONAL AND FACTOR ANALYSIS STUDIES OF ORAL LANGUAGE MEASURES

Data for 74 pupils in three project classes (one class each at the A2, B3, and A3 levels) were used in a study of interrelationships among language measures. For these children, data on two additional variables were added: (1) chronological age and (2) score on the project-designed Malabar Vocabulary Test (presented in Appendix A).

In order to obtain a measure of childrens' passive vocabulary, we obtained copies of Loban's vocabulary test, used in his longitudinal studies.[1] Examination of this test revealed that it was unsuited to the Mexican-American children at Malabar. These children would not have had experience with such concepts as "soot," "ton of coal" or "spout" of a teapot. In the Malabar child's environment, it is not the "butcher" who sells meat or the "tailor" who makes men's clothes.

Since our concern was to study the children's background in reading, it seemed ideal to select words at random from the reading series used at Malabar. By using this method of selection, it would be possible to assess the degree to which children understood the spoken words which appeared in print in their readers. The nth word from each of four readers (for first through fourth grade)[2] was selected for inclusion in the test, n depending on the ratio of the number of words in the word list of that reader to the 25 words required if the proposed 100-word test were to include equal representation from each of the grade levels. Whenever the word selected at random was a proper name, connecting word, or an abstract word, these words were replaced by adjacent words which could be objectively defined, or illustrated by a demonstration, concrete referent, or antonym.

The 100 words selected (25 for each grade level) were divided into categories according to presentation techniques. The category of "concrete referents" included objects which could be displayed to the child by showing either the actual object, or a pictorial or miniature representation thereof. For another category of words, clues were provided in the form of antonyms; for still another, questions were used to provide clues to their identity; a few words, especially verbs, were handled by demonstration, chiefly with gestures, by the examiner.

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[1] Walter Loban, Language Ability: Grades Seven, Eight, and Nine, Monograph No. 18, U.S.Department of Health, Education and Welfare, Office of Education (Washington, D.C.: Government Printing Office, 1966).

[2] Words from the fourth grade reader were included to provide an adequate ceiling for the test.

The 100 words were typed on one hundred 3x5 cards for use in individual administration to children. The order of presentation within each category was the order in which words appeared in each reader word list,[3] with the words at the lower levels consistently being presented first. The first forty words involved the use of concrete referents (objects selected for clarity of illustration and appeal to children). The child is shown each referent in turn, and asked "What is this?" His response was recorded verbatim so that staff judgment could be used on scoring of any marginal replies. For the 60 items not involving concrete referents, the questions, alternates, or other verbal clues used by the examiner are recorded in the copy of the test given in Appendix A.

Intercorrelation Study

In addition to chronological age, score on the Malabar Vocabulary Test, and reading score,[4] all other variables in the 30-variable correlation matrix were language measures based on 300-word samples from the children's Oral Language Interviews. The 27 oral language measures selected are listed as variables 1 through 14 and variables 17 through 29 in the list of variables preceding the correlation matrix (Table B-20 of the Appendix).

Some of the statistically significant correlations in the matrix reflect part-whole relationships; examples are: the correlation between total number of adverbials and number of adverbs (.92), adverbial phrases (.66) and adverbial clauses (.49). Other high correlations reflect the naturally high relationship between the frequency of some language measures and the opportunities for their occurrence; e.g. the correlations between number of verbs and the various modifiers of verbs (.61 with number of adverbs, .47 with number of adverbial phrases and .32 with number of adverbial clauses).

More interesting are the moderately high correlations which are found between certain measures of complexity and variety of language which are not attributable to either part-whole relationships or to the relationship of the frequency of measures to the opportunity for their occurrence. Examples of such statistically significant relationships are as follows: correlations of .38 and .44 respectively between number of clauses per T-unit and (1) mean length of the child's three longest T-units, and (2) mean length of his three longest T-units without variations from standard English. Other examples are: the correlations between the mean length of the child's three longest T-units and (1) ratio of adverbials to verbs modified (.58); (2) variety in the use of types of adverbials in different positions (.71), (3) number of different nominal types used (.47), and (4) number of different adjectives used (.47).

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[3] Data on the categorization of items by grade and mode of presentation are given in Appendix A, together with data on percentage of success on each item.

[4] Corrected raw score, Total Reading, Stanford, Primary I.

In other words, there is sufficient evidence in the correlation matrix suggesting underlying factors of language competency to justify the undertaking of a factor analysis of variables from the correlation matrix.

Factor Analysis of Selected Oral Language and Reading Variables

A factor analysis was made of 27 of more than 60 potential variables, including scores on three written tests[5] plus 24 language measures derived from an analysis of an oral language interview. Data were available for 74 second and third grade children in three project classes. The 27 variables were intercorrelated and principal component factors were extracted. Six of the principal component factors were then rotated by the Kaiser Varimax method, using squared multiple correlations as estimates of communalities.

The most significantly loaded variables on Factor I are as follows:

5.	No. of adverbials	.86
17.	No. of 1A nominals (unmodified nominals)	.86
6.	No. of verbs	.80
22.	No. of words in T-units	.80
21.	No. of T-units	.69
8.	Adverbial phrases used	.65
25.	No. of uncommon adverbs	.64
11.	No. of adverbial types x positions	.61
9.	Predications x verb types	.60
14.	Adverbial clauses used	.40

The variable numbers are those used in Table XXXa.

Factor I represents the closest approximation to a general factor in this analysis. Over one-half of the total variance in the six rotated factors is represented in this single factor. The factor would seem more than any other in the analysis to represent a general ability to handle language fluently and effectively. Without taking the remaining factors into account, there would be a temptation to equate this factor with general scholastic aptitude; but Factor V, which is described later as a measure of verbal comprehension, has perhaps a stronger claim to this

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[5] Corrected raw scores on Total Reading, Stanford Primary I, the Malabar Vocabulary Test (requiring spoken responses to concrete referents or questions), and the Sight Vocabulary Test (requiring recognition of a sampling of printed words from pre-primers, first and second grade readers used in the school). The latter two tests were developed by the project Research Staff; the construction of the Malabar Vocabulary Test is described in the first section of this chapter and in Appendix A of this report, while that of the Sight Vocabulary Test is described in the First Interim Report, pp. 29-31.

TABLE XXXa

ROTATED FACTOR LOADINGS OF 27 VARIABLES ON SIX PRINCIPAL COMPONENT FACTORS

Variable	I	II	III	IV	V	VI	Commun-ality(h^2)
1. Verb Variations	-.05	.24	.17	-.06	-.54	.03	.38
2. Type II Predications	.06	.15	.02	.65	.12	.06	.47
3. Type III Predications	.13	.23	-.01	.06	-.01	.56	.39
4. Type V Predications	-.01	-.09	.10	.02	.03	.48	.25
5. Adverbials	.86	.09	.05	-.12	-.01	-.14	.79
6. Verbs	.80	.34	-.04	.42	.05	.08	.94
7. Infrequently used nominals	.15	.76	-.03	.04	.00	-.07	.61
8. Adverbial phrases used	.65	.10	.36	.08	-.11	.08	.59
9. Pred. x Verbs x Types	.60	.12	.23	.10	.01	.39	.58
10. Different adjectives	.22	.87	.11	.03	.12	.03	.84
11. Adverbial Types x Positions	.61	.33	.36	-.01	.08	.10	.62
12. CA	-.28	-.04	-.08	-.12	.09	.40	.27
13. Malabar Vocabulary Test	.02	.05	.06	.02	.50	.11	.27
14. Adverbial clauses used	.40	.03	.54	-.15	.20	.04	.52
15. Adjective clauses used	.09	.48	-.12	.02	-.35	.04	.37
16. Noun clauses used	.13	.23	.34	-.02	.11	.31	.30
17. 1A Nominals	.86	.05	.02	.31	.02	.16	.87
18. IIIB Nominals	.10	.56	.20	.10	.13	.11	.40
19. Words in mazes	.10	.02	.63	.17	-.09	.03	.44
20. Words in reportage responsums	.06	-.21	-.27	-.17	-.48	-.05	.38
21. T-units	.69	.19	-.09	.58	.10	-.02	.87
22. Words in T-units	.80	.42	.18	.24	.14	.10	.94
23. Mean length of T-units	.31	.41	.32	-.27	-.17	.30	.56
24. Uncommon prepositions	.36	-.09	.11	-.09	-.07	-.06	.17
25. Uncommon adverbs	.64	.23	-.09	-.21	-.07	-.13	.53
26. Stanford Total Reading	-.03	.12	-.19	-.47	.32	.16	.40
27. Sight Vocabulary Test	.01	.08	-.06	-.32	.43	-.05	.30

distinction. The use of verbs, adverbs and both adverbial phrases and clauses, as well as type 1A nominals[6] suggests an emphasis on action words, rather than description.

The leading variables on rotated Factor II are as follows:

10.	No. of different adjectives	.87
7.	No. of infrequently used nominals	.76
18.	No. of IIIB nominals (possessive constructions)	.56
15.	Adjective clauses used	.48
22.	No. of words in T-units	.42
23.	Mean length of T-units	.41

The two heaviest-loaded variables are variety factors, representing the use of different adjectives and the use of infrequently used nominals (involving adjectival constructions). The next highest loadings are on language measures involving the use of IIIB nominals (possessive constructions) and the use of adjective clauses. The emphasis on "different" and "infrequent" suggests creativity in verbal expression with overtones of color and richness. Additionally, it would appear that Factor II may represent the use of descriptive statements in contrast to the more direct, active construction represented in Factor I. Thus, Factors I and II seem to differentiate the two major modes of expression - direct, active, verb-oriented construction vs. indirect, descriptive, object-oriented expression.

Rotated Factor III is loaded significantly on only two variables.

19.	No. of words in mazes	.63
14.	No. of adverbial clauses used	.54

Maze material consists of hesitations, false starts, incomprehensible phrases, and incomplete predications which cannot be classified as message carrying. Adverbial clauses may frequently be added in unsuccessful efforts to clarify verbal expression. This evidence of inadequacy in simple expression suggests hesitation and confusion, with possible influence of emotional tension generated in the presence of the adult interviewer.

Factor IV has two variables with relatively high loadings and two others with moderate loadings as follows:

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[6] Type 1A nominals, or unmodified nominals, include: single-word nominals, nouns and determiners, and proper names. A nominal is defined as "any of the structures that function as subject of a verb, or as direct object, predicate nominal after a copula (linking verb) object of a preposition, etc."

2.	No. of type II predications[7]	.65
21.	No. of T-units	.58
26.	Corrected score in Total Reading, Stanford Primary I	-.47
6.	No. of verbs	.42

It is of interest to note that this factor is negatively loaded on the Stanford Reading score; it is not surprising therefore that this factor loads positively on number of T-units because, with sample-length controlled, the less mature child who uses shorter T-units, consequently uses more of them within the sample studied. This fact in conjunction with the fact that the number of T-units and number of verbs are also loaded significantly on Factor I suggests that lower reading ability may be associated with the production of many short T-units, inevitably involving relatively more verbs and evidently more Type II predications. Type II predications involve linking verbs and predicate adjectives, as the child briefly responds to the toys or pictures by such statements as "It's pretty" or "It's big."

Factor V has four variables with moderate loadings:

1.	No. of verb variations	-.54
13.	Malabar Vocabulary Test	.50
20.	Words in reportage responsums	-.48
27.	Sight Vocabulary Test	.43

The highest loading is on verb variations. Since verb variations are variations from standard English and represent what might be described as poor English, it follows that a high score on this variable represents poor verbal comprehension in the language of instruction. Each of the two vocabulary tests is loaded moderately and positively, while Stanford Reading has a loading of .32. This factor would seem to come closest to representing the well-known factor of Verbal Comprehension.

Factor VI is loaded as follows:

3.	Type III predications	.56
4.	Type V predications	.48
12.	Chronological age	.40
9.	Predications x verb types	.39

Despite the relatively moderate loading of chronological age, this factor would appear to be associated with maturity. The chronological age variable has a communality of only .27 and its loading of .40 represents approximately 60 per cent of this communality. The Type III and Type V predications, involving the use of predicate nominatives and indirect objects respectively, tend to be used more as the child matures.

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[7] A T-unit with subject plus linking verb plus predicate adjective.

CHAPTER VII

COMPARISON OF ORAL LANGUAGE MEASURES OBTAINED BY DIFFERENT METHODS

During the first year of the project, we were not successful in conducting Oral Language Interviews with preschool or kindergarten children which would produce a sufficient number of words for language analysis. Hence, it was necessary to devise another means for obtaining language samples for these young children. A portable microphone, which was in reality a miniature transmitting unit, was placed in a chest band on one preschool child each day on a rotating basis; another microphone was used daily with kindergarten children on a rotating basis. Thus, everything that the child said and everything that was said to the child by adults or children was transmitted from this portable microphone to a pick-up unit into which was plugged a tape-recorder. In this way, tape-recordings of the functional language of these young children were obtained.

The same procedures were used in 1968 to record the children's spontaneous language during the preschool and kindergarten programs. However, this year the interviewers were successful in conducting Oral Language Interviews with all preschool children who attended regularly. This gratifying success, i.e. in interviewing three to five year olds, may be due, in part, to the greater experience of the interviewer in working with young children, to the fact that the preschool children have become more relaxed with school-related adults as teachers gained in experience and as their mothers felt more at home in the school setting. Since the interviewer was successful in interviewing preschool children, he also interviewed a random sampling of kindergarten children.

As a result, comparative data are available in Table XXXI on language samples obtained for the same children by each of two different methods: (1) spontaneous language recorded as children participate informally in school activities and (2) Oral Language Interviews by a bilingual college student. Both types of data are available for two maturity levels, preschool and kindergarten.

First-Level Analysis

It is very evident from first-level analysis data that the Oral Language Interview elicits a more mature level of language from both preschool and kindergarten children than is typical of their spontaneous language in informal situations. Oral Language Interviews elicited fewer words in mazes and reportage responsums, and more T-unit words. Despite the small number of cases involved in the comparisons, the difference with respect to number of T-unit words were significant for both the kindergarten and preschool groups.

In the Oral Language Interviews, children's T-units average a word longer at the preschool level and 1.5 words longer at the kindergarten level than do T-units in spontaneous language. When the child' three longest T-units are considered, the differences are especially large; for

TABLE XXXI

COMPARISON OF SELECTED LANGUAGE MEASURES FOR 35 PAIRS OF LANGUAGE SAMPLES OBTAINED BY TWO DIFFERENT METHODS[a]

	Preschool Means		Kindergarten Means	
Variable	Spontaneous Language	Oral Language Interview	Spontaneous Language	Oral Language Interview
Number of Cases	18	18	17	17
Per cent of words in language sample classified as:				
Mazes	15.9	11.4	16.7	13.6
Reportage responsums	30.8	17.8*	24.4	15.9
T-units	53.5	70.9*	58.9	70.4*
Mean length of:				
All T-units	4.1	5.0*	4.1	5.6*
Three longest T-units	7.7	10.2*	8.1	11.2*
Three longest T-units without variations	7.0	8.6*	7.1	8.8*
Percentage of predications of each type:				
Type I	37.0	44.9*	47.6	43.1
" II	4.9	5.1	4.5	5.7
" III	14.5	6.1	11.3	6.2
" IV	42.0	41.4	33.8	39.8
" V	.3	1.6	1.8	2.0
" VI	1.3	1.2	1.2	3.4
Percentage of verbs of each type:				
Present tense	66.3	52.6*	71.9	57.4*
Present progressive	4.1	7.6	3.3	7.6
Past tense	8.2	16.2*	5.6	14.1*
Past progressive	.1	4.7*	.8	1.7
Modal auxiliary + base form of verb[b]	15.4	13.6	12.2	13.1
Modal auxiliary + infinitive	4.3	3.4	5.8	2.8
Other	1.5	2.3	.6	3.6*
Per cent of verbs modified	39.1	49.4*	36.2	49.9*
Types of adverbials:				
Number of intensifiers	1.5	.6	1.4	.8
Number of adverbs	14.6	19.1	13.3	19.7*

TABLE XXXI (Cont'd)

COMPARISON OF SELECTED LANGUAGE MEASURES FOR 35 PAIRS OF LANGUAGE SAMPLES OBTAINED BY TWO DIFFERENT METHODS[a]

Variable	Preschool Means		Kindergarten Means	
	Spontaneous Language	Oral Language Interview	Spontaneous Language	Oral Language Interview
Number of Cases	18	18	17	17
Types of adverbials: (Cont'd)				
Number of adverb phrases	4.6	7.2	4.4	7.8*
Number of adverb clauses	.2	.6	.6	1.5*
Total number of adverbials	20.9	27.5*	19.7	29.8*
Nominals:				
Total number of nominals	59.8	69.9*	53.7	69.9*
Per cent of unmodified nominals	85.6	86.3	84.9	86.1
Number of:				
Adverb clauses	.24	.59	.56	1.47*
Adjective clauses	.29	.12	.17	.22
Noun clauses	.76	.71	1.00	1.39
Subordinate clauses	1.29	1.42	1.73	3.08*
Main + subordinate clauses	39.17	44.07	40.77	42.47
T-units	37.88	42.65	39.06	39.39
T-unit words	160.29	211.18	159.61	213.11*
Verbals	1.47	1.79	1.72	1.39
Variety measures:				
Number of:				
Predications x verb types used	13.94	15.12	13.67	12.44
Adverbial type x position combinations used	3.76	4.47	3.83	4.56
Nominal types used	3.35	3.59	3.00	3.44
Different adjectives used	6.00	6.53	5.00	6.39
Infrequently used types of nominals	1.76	1.65	1.11	1.89
Types of compounds used	.06	.65*	.22	.50
Types of verbals used	.10	.18	.14	.11

TABLE XXXI (Cont'd)

COMPARISON OF SELECTED LANGUAGE MEASURES FOR 35 PAIRS OF LANGUAGE SAMPLES OBTAINED BY TWO DIFFERENT METHODS[a]

Variable	Preschool Means		Kindergarten Means	
	Spontaneous Language	Oral Language Interview	Spontaneous Language	Oral Language Interview
Number of Cases	18	18	18	18
Variety measures:				
Number of: (Cont'd)				
Different uncommon prepositions used	.71	1.24	.67	1.56
Adverbs used	3.41	4.29	4.44	5.44

*Mean significantly higher for Oral Language Interview data as compared with "spontaneous language" data for the same variable.

[a] Samples of spontaneous speech were obtained by the use of a microphone, worn on a shoulder band, which transmitted as a sending station to a tape recorder. The Oral Language Interview was conducted by bilingual college students, who had been trained in the use of the interview questions (following a warm-up period in Spanish and English). A copy of questions, alternates, and prompts used in the Oral Language Interview is given in Appendix A of the First Interim Report.

[b] Other than "shall or will".

preschool and kindergarten children the Oral Language Interview elicited T-units which averaged 2.5 and 3.1 words longer respectively than T-units from samples of spontaneous language. Differences between the two methods were not quite so large, but still exceeding one and one-half words in favor of the Oral Language Interview, when the child's three longest T-units without variations were compared. All differences with respect to T-unit length significantly favored Oral Language Interviews at both the preschool and kindergarten levels.

Types of Predication Patterns and Verbs

The findings with respect to type of predication patterns show considerable inconsistency. Preschoolers use Type I predications significantly more often in interviews than in spontaneous language; kindergartners, on the other hand, use more Type I predications in their spontaneous language; the latter difference, however, is not statistically significant. The only large difference which is found consistently at the preschool and kindergarten levels is the greater use of Type III predications, involving the predicate nominative, in spontaneous language.

Statistically significant differences are found, however, with respect to types of verbs. In the Oral Language Interview, both preschool and kindergarten children used the present tense less and the past tense more. Also, both preschool and kindergarten children used a significantly larger percentage of modified verbs in their Oral Language Interviews. Fairly large and consistent differences at both maturity levels were also found for greater use of the present progressive and past progressive tenses in Oral Language Interviews, less frequent use of modal auxiliary plus infinitive, and greater use of other (or infrequently used) verb types. In general, the data on use of verbs confirm the picture of the child's demonstrating his more mature use of language in the Oral Language Interview. Although the recording of spontaneous language provides data of value in describing the child's typical language in informal situations, it appears that the Oral Language Interview provides a better basis for evaluating the child's linguistic development.

Types of Adverbials

Both preschool and kindergarten children showed in their Oral Language Interview higher means on total adverbials, as well as greater use of each sub-type of adverbial except intensifiers. At the kindergarten level, all these differences favoring the Oral Language Interview were significant; at the preschool level, the only statistically significant difference was for total adverbials. It should be noted, however, that since the mean number of T-unit words available for second-level analysis is approximately one-third larger in the Oral Language Interview, as compared with spontaneous language, the superiorities noted in this section can, with few exceptions, be explained by this difference in opportunity for occurrence.

Nominals

At both the preschool and kindergarten levels, the children used significantly more nominals in the Oral Language Interview, as compared with spontaneous language; however, these differences are no greater than would be accounted for by the larger number of T-unit words available for second-level analysis. The differences with respect to percentage of unmodified nominals were small and not statistically significant. No comparisons as to types of nominals were made.

Measures of Subordination

Kindergarten children used significantly more subordinate clauses in the Oral Language Interview than in their spontaneous language; they also significantly excelled in terms of number of adverb clauses used in the interview sample. These differences are larger than could be accounted for in terms of the number of T-unit words available for second-level analysis.

Measures of Variety

Although most of the differences in variety measures showed greater variety and flexibility in use of language in the Oral Language Interview, only one of the differences is statistically significant.

Stability of Language Measures under Two Different Methods of Eliciting Language

Although most of the language measures showed little consistency from "spontaneous language" to Oral Language Interview, some measures did show correlations differing significantly from zero, even with the small number of cases involved. It is possible, therefore, that these measures might have sufficient generality to merit further study with larger samples.

One of these measures (listed in Table XXXII) may have a spuriously high correlation because of its relation to sample length, i.e. number of IIc nominals. The five measures which seem most promising (in terms of generality or cross-method reliability) are as follows: ratio of adverbs to verbs, .62; ratio of total adverbials to verbs modified, .61; mean length of T-units, .54; percentage of Type III predications (involving use of the predicative nominative), .46; and total number of variations from standard English, .46. If 600-word samples could be obtained, these measures could be used as measures of group progress in oral language development, with the understanding that they are probably less affected by method and situational variables than are many other language measures.

TABLE XXXII

MEASURES OF ORAL LANGUAGE WHICH HAVE CROSS-METHOD RELIABILITY COEFFICIENTS OF .30 OR HIGHER (BASED ON 300-WORD SAMPLES OBTAINED FROM THIRTY-FIVE PRESCHOOL AND KINDERGARTEN CHILDREN BY DIFFERENT METHODS[a] ON DIFFERENT OCCASIONS

Language Measure	Reliability Coefficients	
	Estimated reliability for 300-word Samples	Estimated reliability for 600-word Samples
Per cent of Type III predications (subject + verb + predicate nominative)	.30	.46
Total number of variations from Standard English	.30	.46
Ratio of adverbials to verbs modified	.44**	.61
Ratio of adverbs to verbs	.45**	.62
Number of IIc nominals (nouns modified by prepositional phrases)	.33*	.50
Mean length of T-units	.37*	.54

*Significant at the .05 level.

**Significant at the .01 level.

[a] One 300-word sample was taken from an Oral Language Interview conducted by a bilingual adult; the other 300-word sample was taken from a tape recording of spontaneous conversation in the preschool or kindergarten. Samples were obtained by both methods for eighteen preschool and eighteen kindergarten children.

PART FOUR

SUMMARY AND RECOMMENDATIONS

CHAPTER VIII

SUMMARY AND RECOMMENDATIONS

Since this report concludes the three years of work, financed under Project No. 5-0559, the data have been organized so as to provide evidence concerning the hypotheses formulated in 1966 at the initiation of the program. These hypotheses are as follows:

1. Children who have had the enriched, individualized instructional program, described in Part One as the Project Method, will attain significantly higher reading scores on standardized reading achievement tests than did the baseline groups measured in Spring, 1966.
2. Children who have had the Project instructional program will also attain significantly higher results on measures of oral language development.
3. Children who have been included in the program for two or three years will attain significantly higher scores in both reading and oral language development than those who have been included in the program for shorter periods of time.
4. Despite the relatively heavy emphasis on the Project program on reading instruction, Project children will not achieve significantly lower scores in arithmetic.

Following this presentation of findings, recommendations are made for further research needed.

Summary of Findings on Children's Progress in Reading and Oral Language

The first research hypothesis. Results from all tests administered at all grade levels support the first research hypothesis concerning the superior achievement of children who have had an enriched and individualized program of instruction.

1. At the A1 grade level, significant differences favoring project classes over baseline data were found on Total Reading, Stanford Primary I and on all reading sub-tests, except Vocabulary, as well as on the project-designed Sight Vocabulary Test.
2. All-school results for the first-grade level were also highly favorable, with the 1968 pupils significantly excelling 1966 baseline data on all tests; in fact the percentage of Malabar pupils scoring at the 3rd stanine and above in Total Reading increased from 7.5 per cent for 1966 baseline data to more than 40 per cent for each semester of 1967-1968.

3. At the A2 grade level, project children significantly excelled baseline data in Total Reading and in all subtests of the Stanford Primary I except Vocabulary. On the more difficult Primary II battery, project children significantly excelled baseline data on both Paragraph Meaning and Word Study Skills; other differences were not statistically significant.

4. The all-school A2 results, with the larger number of cases involved, showed significantly superior results in Total Reading on all subtests of the Stanford Primary I except Vocabulary. On the more difficult Stanford Primary II, all-school results for the 1968 second-graders significantly excelled baseline data in Paragraph Meaning and Word Study Skills. The percentage of second-grade children scoring at 3rd stanine and above increased from 14.5 per cent in 1966 to 25.4 per cent in 1968.

5. Project children enrolled at the A3 level in 1968 significantly excelled baseline data in Total Reading, Stanford Primary I and on all subtests except Vocabulary; they also significantly excelled baseline data in Total Reading, Stanford Primary II and all subtests except Word Meaning. With respect to Total Reading, third-grade project children were eight months above baseline data on the Primary I, four months above baseline on the Primary II and five months above baseline on the California Reading Test.

6. With respect to all-school A3 results, the 1968 results significantly excelled 1966 baseline data on Total Reading, Stanford Primary I and on all subtests except Vocabulary; on the more difficult Primary II they excelled significantly on Total reading and on all subtests except Word Meaning. The percentage of 1968 third graders scoring at the 3rd stanine and above was 34.3 per cent, as compared with 27.5 per cent for 1966 baseline data. On the California Reading Test, 69.1 per cent scored at the 3rd stanine and above in 1968 as compared with 36.3 per cent in 1966.

The second research hypothesis. The second hypothesis concerning gains in oral language development was tested by analyzing oral language samples obtained in 1968 and comparing them with similar samples obtained in the 1966 baseline study. Considerable evidence was obtained to support the second research hypothesis for primary-grade children. Since this study involved so many measures, only a few comparisons are cited from Chapter III.

1. At all three grade levels (A1, A2 and A3), the 1968 interviews of project children showed a significantly smaller percentage of maze material than was noted in 1966 baseline data. In both

the A1 and A2 groups, there was a corresponding increase in percentage of words in T-units. On the latter measure the B1 groups (which had had both preschool and project kindergarten) excelled baseline means for both first and second grades.

2. Project children from the B1, A1 and A2 grades significantly excelled baseline means with respect to mean length of the child's three longest T-units. Again the B1 group mentioned above excelled baseline pupils who were older than they.

3. Project children used the past tense more frequently, showed greater complexity of adverbials, and excelled baseline data with respect to four different variety measures. In all these comparisons, differences were statistically significant at two or more grade levels. The B1 class, with both project preschool and kindergarten, excelled in nine of the ten variety measures (with five of these differences being statistically significant).

In summary, considerable primary-grade data were obtained in support of the second hypothesis, especially at the first-grade level. The B1 class with extensive preschool experience showed many evidences of accelerated language development. The A1 project children were superior to A1 baseline data in many language measures, with a significantly smaller percentage of maze material and a significantly larger percentage of T-unit words, significantly higher means for length of three longest T-units, a higher percentage of past-tense verbs, greater complexity of adverbial structures, and a superior record on all ten variety measures. The A2 children were superior on several variables, while the A3 children had a less consistent record. Since the project emphasis has been chiefly on the younger children, the results on oral language development are consistent with this emphasis.

It is more difficult to find data to test the second research hypothesis at the preschool and kindergarten levels since the Oral Language Interview was not administered at these levels in 1966 (as noted in Chapter VII). However, the following data provide some basis for testing the second hypothesis with the younger children.

1. The 1968 B1 class, which had had both preschool and kindergarten, were interviewed; and their results (already presented under data for the elementary school grades) provide strong support for the second research hypothesis.

2. Comparison of 1968 and 1966 data on the spontaneous language of preschool and kindergarten children recorded only two statistically significant differences; these favored the 1968 preschool children; i.e., a larger percentage of reportage

responsums and a larger number of verbals. On the other hand, 1968 kindergarten children had slightly more maze material and slightly fewer T-unit words. The reader is referred to Chapter VII for data which show that spontaneous language does not provide a good basis for judging how well a child can speak. Hence, these inconsistent data for preschool and kindergarten children cannot be considered as either confirming or disconfirming the second research hypothesis.

3. In an attempt to gain further evidence regarding the second hypothesis, a random sampling of 18 non-project kindergarten children and 17 project children were interviewed in May, 1968. Interviewers were able to elicit considerably more T-unit words, which could be used in second-level analysis (a mean of 213 words for project children as compared to 162 for non-project kindergartners). Project children also had a larger percentage of words in T-units and fewer reportage responsums. The mean length of the project child's three longest T-units was 11.2 words, as compared with 10.1 words for non-project kindergartners. Because of the small number of cases, however, the differences noted were not statistically conclusive.

In summary, the data in support of the second hypothesis, are inconclusive at the preschool and kindergarten levels.

The third research hypothesis. The data presented in Chapter II do not provide conclusive support for the third research hypothesis concerning significantly greater gains in both reading and oral language development for those children who have been included in the project for two or three years, as compared with those who have been included for a shorter period of time. Since baseline data could not be gathered until May, 1966, two years was the maximum length of time that any pupils could be enrolled in the program. Although the two A2 classes with two years of project instruction consistently excelled baseline data by a wider margin than A1 children (with only one year in the project), other data are inconsistent with the third hypothesis. The A1 class with both project preschool and kindergarten instruction excelled the class with only kindergarten instruction in four of the five reading scores; however, the number of cases was too small for all differences to be statistically significant. The largest and most consistent differences favoring project classes, as compared with baseline data, were found for the third-grade class with only three semesters of project instruction. The fact that standardized tests are more valid for older children may contribute to this difference.

The fourth research hypothesis. The fourth hypothesis, that project children would not achieve significantly lower scores in arithmetic, was tested at the third-grade level only. For both the B3 and A3 grades, 1968 all-school results were slightly superior to the 1966 baseline data in Total Arithmetic. Grade scores in Arithmetic Reasoning, which depends in part on reading ability, showed substantial gain for A3 pupils between 1966 and 1968.

Summary of Findings on Relationships of Oral Language Measures to Reading Achievement, Grade Level, and Sex

In addition to the testing of the four research hypotheses, the 1968 study involved a replication of the 1966 study on (1) grade level changes in oral language development and (2) the extent of which oral language measures differentiated between "high" and "low" readers (groups of children who ranked in the highest and lowest one-third of their grade level groups in reading achievement).

Grade-level trends. The 1966 and 1968 studies agreed with respect to the following grade-level trends:

1. The percentage of words in reportage responsums decreased consistently with grade level, while the percentage of T-unit words increased.

2. The mean length of the child's T-units increased consistently with grade-level. Even larger increases occurred with respect to mean length of the child's three longest T-units, as well as mean length of his three longest T-units without variations from standard English.

3. About five-sixths of the child's predication patterns may be classified in the two most frequently used types (I and IV). There is no consistent relationship between grade level and the use of any type of predication pattern.

4. The verb types most frequently used by primary-grade pupils are (1) the present tense and (2) a combination of modal auxiliaries (other than shall or will) with the base form of the verb, e.g., can go. No grade level trends are evident.

5. There is a statistically significant increase from first to third grade in the use of total adverbials, with the increase in the use of both adverbial phrases and clauses being statistically significant in both the 1966 and 1968 studies.

6. There is a statistically significant increase from first to third grade in the number of clauses per T-unit, as well as in the average length of clause. Adverbial clauses were consistently the more frequent at all three grade levels, followed by noun clauses and adjective clauses.

7. Of the ten variety measures developed for this research, six showed consistent improvement with grade level in both studies: (a) number of adverbial types x position conbimations, (b) number of nominal types used, (c) number of infrequently used nominals, (d) number of different adjectives used, (e) number of different uncommon prepositions used, and (f) number of different uncommon adverbs used.

Comparison of high- and low-reader groups. There are fewer consistencies between the 1966 and 1968 studies with respect to oral language measures which differentiated between high- and low-reader groups. One of the reasons for inconsistent findings is undoubtedly the unreliability of the criterion data[1] for these children especially at the A1 level. Language measures are listed below as differentiating between high- and low-reader groups if the high groups consistently excelled low groups at at least two grade levels in each of the two studies:

1. Percentage of words classified as T-unit words.
2. Mean length of all T-units.
3. Mean length of child's three longest T-units.
4. Higher mean number of adverbials.
5. Higher ratio of total adverbials to verbs modified.
6. Greater use of subordinate clauses, especially adverb and adjective clauses.
7. Higher subordination ratios.
8. Larger number of nominal types used.
9. Greater use of infrequently used nominals.
10. Larger number of different adjectives used.
11. Greater variety in the use of compounds.
12. Larger number of uncommon adverbs used.

Although this is a meager harvest from the large number of oral language measures used, these findings do provide leads for further study. Moreover, it is significant that of the ten variety measures developed especially for this study, five are included in the above list.

Sex differences in oral language development. Only the 1968 data were analyzed for sex differences. Very few sex differences were found which were consistent throughout the three grade levels studied.

1. Girls had consistently smaller percentages of maze material; however, only the second-grade difference was statistically significant.

2. At all three grade levels, boys excelled girls with respect to mean length of their three longest T-units without variations from standard English; differences were not significant at the .05 level.

3. There are a number of interesting differences between boys and girls with respect to types of predication patterns used; these differences probably reflect differences in style rather than maturity. Boys consistently used a higher percentage of the Type I predication pattern (subject + intransitive verb); these differences are statistically significant. Girls, on the

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[1] Corrected raw score on Total Reading, Stanford Primary I.

other hand, use more predication patterns of Types II and IV[2], with the differences at the third grade level being statistically significant.

4. Boys consistently excelled girls at all three levels with respect to several variables involving the use of adverbials, i.e., number and percentage of verbs modified, number of adverbs, adverb phrases, and total adverbials used and the ratio of each of these to number of verbs in the sample, as well as the ratio of total adverbials to verbs modified. At the third grade level, the ratios of adverb phrases and total adverbs/verbs were statistically significant.

5. Girls consistently had lower (superior) means on per cent of unmodified nominals and consistently exceeded boys in the number of possessive constructions used. It appears that boys tend to use more adverbials and girls more adjective constructions - a stylistic difference.

6. Results with respect to measures of subordination showed no sex differences which were consistent from one grade level to another.

7. With respect to three measures of variety, boys excelled at all three grade levels: number of combinations of predications and verb types used, and the number of both uncommon prepositions and adverbs.

Research on Interrelationships Among Language Measures

Intercorrelational and factor analysis studies. A correlation matrix was prepared involving all possible intercorrelations of 30 variables (27 language measures, chronological age, score on the Malabar Vocabulary Test, and corrected score in Total Reading, Stanford Primary I). There was sufficient evidence in this correlation matrix suggesting underlying factors of language competence to justify the undertaking of a factor analysis of variables.

This analysis, conducted for the project by a specialist in factor analysis, resulted in the extraction of the following principal component factors:

Factor I, representing an emphasis on action words rather than description.
Factor II, representing emphasis on the use of descriptive statements in contrast to the more direct, active construction represented in Factor I.

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[2] Type II predication pattern is: subject + linking verb + predicate adjective; Type IV predication pattern is: subject + transitive verb + object.

Factor III, loaded most heavily on maze material suggesting inadequacy in oral expression, possible as the result of emotional tension in the presence of an adult interviewer.

Factor IV, negatively loaded on Stanford reading score, almost defies description, but involves the use of a larger number of shorter T-units by the child.

Factor V, which loads negatively on verb variations and positively on the two vocabulary tests, seems to represent verbal comprehension in the language of instruction.

Factor VI, appears to be a maturity factor with moderate loadings on chronological age and on types of predication patterns which tend to be used more as the child matures.

Comparative results on language measures obtained by two different methods. Since project interviewers were able to obtain interviews with preschool and kindergarten children this year, it was possible to compare language measures obtained for the same children by means of (1) recording of spontaneous language and (2) the Oral Language Interview.

It is very evident from the findings that the Oral Language Intervire elicits a more mature level of language from both preschool and kindergarten children than is typical of their spontaneous conversation in informal situations. For example, when the child's three longest T-units are considered, the Oral Language Interview elicited T-units which averaged 2.5 and 3.1 words longer respectively than T-units from samples of spontaneous language.

Recommendations

On the basis of progress made by pupils in reading and oral language, and on the basis of research findings on oral language development, the following recommendations are made:

1. The Malabar experiment be continued for an additional five years, with expansion of the program into grades 4-6. The Malabar School should, in effect, become a model school in an urban environment serving a representative segment of the bilingual Mexican-American community.
2. That bilingual research aides be employed part-time to work in the classroom to assist teachers in identifying learning problems and observing children with special difficulties as they carry on the learning process.
3. That the language research be continued in grades 4-6, involving study of samples of both oral and written language obtained from the same pupils.
4. That in-service seminars and workshops on project methods be developed for teachers and administrators from the greater Los Angeles area.

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APPENDIX A

NEW TESTS DESIGNED FOR PROJECT RESEARCH

SIGHT VOCABULARY TEST, FORM 2*

NAME____________________ TEACHER_______________ GRADE______ DATE__________

1. blue
2. ball
3. cake
4. have
5. house
6. surprise
7. this
8. at
9. what
10. aunt
11. boat
12. away
13. dog
14. he
15. in
16. home
17. me
18. my
19. run
20. with
21. yellow
22. dinner
23. toy
24. will
25. father
26. bunny
27. where
28. happy
29. birthday
30. guess
31. has
32. know
33. hat
34. please
35. take
36. walk
37. truck
38. water
39. all
40. who
41. book
42. bus
43. cold
44. boys
45. day
46. egg
47. find
48. had
49. frog
50. lamb
51. may
52. school
53. rabbit
54. soon
55. three
56. was
57. thought
58. told
59. fire
60. yard
61. basket
62. crying
63. feather
64. hide
65. fence
66. monkey
67. nose
68. rolled
69. side
70. woman
71. before
72. wonderful
73. bird
74. coat
75. dry
76. coming
77. far
78. grass
79. food
80. tell
81. sound
82. hungry
83. sit
84. long
85. milk
86. morning
87. happen
88. use
89. himself
90. keep
91. waved
92. Saturday
93. raccoon
94. stick
95. family
96. right
97. fall
98. circus
99. running
100. such
101. head
102. silver
103. stop
104. ever
105. fell
106. because
107. wind
108. care
109. radio
110. trick
111. find
112. past
113. land
114. cage
115. together
116. off

*Scores on this form correlated .98 with scores on Form 1 (administered to 43 pupils in Grades 1-3 who had not taken either form previously).

MALABAR VOCABULARY TEST*

Instructions:

1. This test includes 100 questions to be answered orally and individually by children in the preschool, kindergarten, and primary grades.

2. The form of words employed in questioning and the suggested action (where indicated) may occasionally be varied in order to elicit the required answer if it appears to be misunderstanding, rather than ignorance, which stands in the child's way. Record the variation used.

3. The number of questions asked at one sitting depends upon the child's age and mental maturity.

4. It will be noted that questions 1-40 deal with concrete referents which the child can see, while questions 41-100 deal with what is merely described.

5. The words in capitals in the last half of the test indicate the correct answers.

Concrete Referents What is this? OR, What are these things?

1.	children	(30)**	11.	basket	(3)
2.	baby	(3)	12.	head	(0)
3.	flowers	(0)	13.	monkey	(3)
4.	blue	(3)	14.	letter	(20)
5.	tail	(0)	15.	peanut	(3)
6.	ball	(0)	16.	hair	(0)
7.	boat	(3)	17.	grass	(0)
8.	bunny	(0)	18.	seeds	(20)
9.	book	(0)	19.	tape	(3)
10.	egg	(0)			

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*Twenty-five words were selected from each of the readers (first, second, third, and fourth grade readers) used at the Malabar schools. Every n^{th} word was selected from each reader (n depending on the ratio of the number of different words used in the reader and the 25 words needed from that level). However, when a word selected at random was unsuitable (e.g., a proper name, a connecting word or a word so abstract that it could not be illustrated, demonstrated, or defined without using words which were more difficult), it was replaced by the next word on the vocabulary list of that reader.

**The number in parentheses indicates the percent of 2nd and 3rd grade children missing the item. Reliability coefficient = .84 (Kuder-Richardson formula).

20.	helicopter	(10)
21.	rope	(3)
22.	mouth	(3)
23.	deer	(15)
24.	lions	(0)
25.	gun	(0)
26.	teeth	(0)
27.	bud	(90)
28.	pigs	(5)
29.	tanks	(25)
30.	hose	(20)
31.	keys	(0)
32.	spears	(63)
33.	rice	(20)
34.	bones	(3)
35.	pickle	(73)
36.	pajamas	(13)
37.	benches	(20)
38.	knots	(38)
39.	hinges	(95)

40. zero (NOTE: Display a list of numbers, starting from zero and progressing to 12, then point to the zero.) (0)

Contrast Can you tell me the missing word?

41. If a green light means go, then a red light means (STOP)? (0)
42. If a nail is not old, it is (NEW)? (5)
43. When you go fast, you run; but when you go slow you (WALK)? (5)
44. If you put one shoe on your left foot, you put the other on the (RIGHT)? (3)
45. If the ceiling is up there, what is down there? (FLOOR) (5)
46. If one boy is short, the other boy is (TALL)? (15)
47. One is big and the other is (SMALL)? (NOTE: If the child answers "little," ask him if he knows another word--one that begins with "S".) (15)
48. When it is cold, it is winter; when it is hot it is (SUMMER)? (15)
49. When you laugh, you are happy; when you cry, you are (SAD)? OR, When you make a face like this, you are (SAD)? (8)
50. If this is crooked, this is (STRAIGHT)? (NOTE: For this item, draw a crooked line and a straight line on a piece of paper.) (5)
51. If the day is warm, the night is (COOL)? (NOTE: If the child says, "cold", then say: "What is the word that means 'a little cold'?" (33)
52. If this is loose, that is (TIGHT)? OR, This belt is loose; now it is (TIGHT)? (10)
53. When you go out, you exit; when you come in, you (ENTER)? (65)

Informational Questions Let's see if you can answer these questions?

54. STORE: Where do you buy candy? (3)
55. EAT: What do you do with your food? (0)
56. BUILD(ING): What are you doing when you make a house with blocks? (10)
57. SURPRISE: When someone plans a party for you and you don't know about it, what do you call the party? (30)

58.	ROOF:	What do you call the top of your house?	(8)
59.	FAMILY:	When you talk about your Daddy, your Mommy, and your brothers and sisters all together, you are talking about your __________?	(13)
60.	TRICK(S):	A magician does ________? (alternate) When you fool somebody, you do what to him?	(25)
61.	BURN:	What happens when you touch something hot? OR, What happens when you put your finger in the fire?	(3)
62.	SELL:	If I buy, what does the market-man do?	(45)
63.	HOLE:	When you dig in the dirt (ground), you make a ________?	(3)
64.	FLAT:	A tire that doesn't have any air is __________?	(3)
65.	THROAT:	Where are your tonsils?	(23)
66.	TEN:	How many toes do you have on both feet?	(0)
67.	MONDAY:	What day comes after Sunday?	(3)
68.	THIRSTY:	When you want to drink water, you are _________?	(18)
69.	CONDUCTOR:	The man who gives you tickets on the train is called a __________?	(80)
70.	DIRT:	If a house is clean, there is no ____________?	(3)
71.	GARAGE:	You put the car in the _____________?	(5)
72.	NUMBERS:	When you do arithmetic, you write ___________?	(5)
73.	RULE:	What does a king do? (alternate) What does a king do in his kingdom?	(80)
74.	CLUB:	If you pay does and go to meetings, you belong to a ___________?	(40)
75.	SECOND:	What comes after first?	(0)
76.	THIRD:	What comes after second?	(3)
77.	MUSIC:	What do you hear on the radio? (alternate) What do you play on the autoharp? If child answers song, ask: "What's another word for many songs?"	(28)
78.	FAKE:	What is another word for "phony?"	(78)
79.	GLOOMY:	A day that is dark and cloudy is called ________? If necessary, add: "The word I am thinking of begins with 'G'."	(93)
80.	ELEVEN:	What is the number after ten?	(0)
81.	HEAVEN:	Where do you go when you have been good? (If necessary, add: "After your life on Earth is over.")	(23)
82.	PUNISHED:	When you are good, you are rewarded; but when you are bad, you are ____________?	(60)
83.	JULY:	What month comes after June?	(20)
84.	TWINKLING:	What are stars doing when they seem to blink on and off?	(40)
85.	PRETEND:	What is another word for "make believe?"	(70)
86.	BLOOM(ING):	What do we call it when flowers open up?	(88)
87.	PIONEERS:	Who crossed the country in covered wagons?	(93)
88.	SWOLLEN:	What do you call it when you've hurt your hand and it gets puffy and fat?	(85)
89.	BEGGARS:	What do you call poor people who ask for money on the street?	(60)

90.	ACCIDENT(S):	When you break things without meaning to or wanting to, we say you have had an_______?	(35)
91.	LAUNCHING:	What is it called when a rocket takes off? If the child answers "blast-off", ask him: "What is another word for 'blast-off'?"	(78)
92.	RECEIVE:	When you get something from another person, you ___________ it. NOTE: If child answers "get", then say, "Do you know another word for get, which begins with 'R'?"	(93)

Demonstration Read the instructions for each of the following items:

93.	DROP:	(Drop a pencil to the floor) Ask: "What am I doing?" or "What did I do?	(0)
94.	TIED:	(Tie your shoelace) Ask: "What did I just do?"	(13)
95.	WAVE(D):	(Wave your hand) Ask: "What did I just do?"	(25)
96.	HOLD:	(Hold something in your hand) Ask: "What am I doing?"	(8)
97.	SMELL(ING):	(Smell a flower, holding it up to your nose) Ask: "What am I doing?"	(0)
98.	KNOCK:	(Knock on the table) Ask: "What did I just do?"	(8)
99.	TORE:	(Tear a piece of paper) Ask: "What did I just do?"	(8)
100.	PEELING:	(Peel a banana or an orange) Ask: "What am I doing?"	(10)

MALABAR VOCABULARY TEST--SHORT FORM FOR GRADES 2-3*

Instructions

1. This test includes 50 questions to be answered orally and individually by children in the primary grades.
2. The form of words employed in questioning and the suggested action (where indicated) may occasionally be varied in order to elicit the required answer if it appears to be misunderstanding, rather than ignorance, which stands in the child's way. Record the variation used.
3. The number of questions asked at one sitting depends upon the child's age and mental maturity.
4. It will be noted that questions 1-15 deal with concrete referents which the child can see, while questions 16-50 deal with what is merely described.
5. The words in capitals in the last half of the test indicate the correct answers.

Concrete Referents What is this? OR, What are these things?

1. helicopter
2. pajamas
3. deer
4. letter
5. seeds
6. hose
7. rice
8. benches
9. tanks
10. children
11. knots
12. spears
13. pickle
14. bud
15. hinges

Contrast Can you tell me the missing word?

16. If this is loose, that is (TIGHT)?
    OR
    This belt is loose; now it is (TIGHT)?
17. If one boy is short, the other boy is (TALL)?
18. One is big and the other is (SMALL)? (NOTE: If the child answers "little," ask him if he knows another word--one that begins with S.)
19. When it is cold, it is winter; when it is hot, it is (SUMMER)?
20. If the day is warm, the night is (COOL)? (NOTE: If the child says "cold," then say: "What is the word that means a little cold?"

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*In this form only those items which discriminated best between 20 high-scoring and 20 low-scoring second and third grade pupils have been included. Within each section (type of item), arrangement of items is in increasing order of difficulty. This form has not yet been administered to groups of pupils.

21. When you go out, you exit; when you come in, you (ENTER)?

Informational Questions Let's see if you can answer these questions:

22.	ROOF:	What do you call the top of your house?
23.	BUILD(ING):	What do you do when you make a house with blocks?
24.	FAMILY:	When you talk about your Daddy, your Mommy, and your brothers and sisters all together, you are talking about your________________?
25.	THIRSTY:	When you want a drink of water, you are_______?
26.	JULY:	What month comes after June?
27.	THROAT:	Where are your tonsils?
28.	HEAVEN:	Where do you go if you have been good? (If necessary, add: "After your life on Earth is over....")
29:	TRICK(S):	A magician does___________? (alternate) When you fool somebody, you do what to him?
30:	MUSIC:	What do you hear on the radio? (alternate) What do you play on the autoharp? If a child answers, song, ask: "What's a word for many songs?"
31.	SURPRISE:	When someone plans a party for you and you don't know about it, what do you call the party?
32.	ACCIDENT(S):	When you break things without meaning to, or wanting to, we say you have had an____________?
33.	CLUB:	If you pay dues and go to meetings, you belong to a________?
34.	TWINKLING:	What are stars doing when they seem to blink on and off?
35.	SELL:	If I buy, what does the market-man do?
36.	PUNISHED:	When you are good, you are rewarded; but when you are bad, you are________________?
37.	BEGGARS:	What do you call poor people who ask for money on the street?
38.	PRETEND:	What is another word for "make believe?"
39.	FAKE:	What is another word for "phony?"
40.	LAUNCHING:	What's it called when a rocket takes off? If the child answers "blast-off," ask him: "What is another word for "blast-off?"
41.	CONDUCTOR:	The man who gives you tickets on the train is called a_________________?
42.	RULE:	What does a king do? (alternate) What does a king do in his kingdom?
43.	SWOLLEN:	What do you call it when you've hurt your hand and it gets puffy and fat?
44.	BLOOMING:	What do we call it when flowers open up?
45.	GLOOMY:	A day that is dark and cloudy is called_______? If necessary, add: "The word I am thinking of begins with 'G'".

46. PIONEERS: Who crossed the country in covered wagons?

47. RECEIVE: When you get something from another person, you________________it. NOTE: If the child answers "get" then say, "Do you know another word for get, which begins with 'R'"?

Demonstration Read the instructions for each of the following items:

48. PEELING: (Peel a banana or an orange) Ask: "What am I doing?"

49. TIED: (Tie your shoelace) Ask: "What did I just do?"

50. WAVED: (Wave your hand) Ask: "What did I just do?"

TABLE A-1

WORDS SELECTED FOR MALABAR VOCABULARY TEST
(25 words each from first, second, third, and fourth-grade readers)

Type of Item	Grade Level of Reader			
	1st Grade	2nd Grade	3rd Grade	4th Grade
Concrete Referents (40 Items)	*children	peanut	gun	bones
	baby	hair	teeth	*pickle
	flowers	grass	*bud	*pajamas
	blue	*seeds	pigs	*benches
	tail	tape	*tanks	*knots
	ball	*helicopter	*hose	*hinges
	boat	rope	keys	zero
	bunny (rabbit)	mouth	*spears	
	book	*deer	*rice	
	egg	lions		
	basket			
	monkey			
	head			
	*letter			
Contrast Antonyms (13 Items)	stop	floor	*cool	*enter
	new	*tall	*tight	
	walk	*small		
	right	*summer		
		sad		
		straight		
Informational Questions (39 Items)	store	*family	*throat	*roof
	eat	*trick	ten	*fake
	*build	burn	Monday	*gloomy
	*surprise	*sell	*thirsty	eleven
		hole	*conductor	*Heaven
		flat	dirt	*punished
			garage	*July
			numbers	*twinkling
			*rule	*pretend
			*club	*blooming
			second	*pioneers
			third	*swollen
			*music	*beggars
				*accidents
				*launching
				*receive
Demonstration Questions (8 Items)	drop	hold	knock	tore
	*tied	smell		*peeling
	*waved			

*Selected for use in short-form edition for use in grades 2-3.

TABLE A-2

TABLE OF EQUIVALENT SCORES ON TWO FORMS OF THE SIGHT VOCABULARY TEST*

Score on Form 2	Equivalent Form 1 Score	Score on Form 2	Equivalent Form 1 Score	Score on Form 2	Equivalent Form 1 Score
0	0	40	53	80	89
1	2	41	54	81	89
2	4	52	54	82	90
3	6	43	54	83	90
4	8	44	55	84	91
5	10	45	55	85	91
6	12	46	56	86	92
7	14	47	57	87	92
8	16	48	58	88	93
9	18	49	58	89	93
10	20	50	59	90	94
11	22	51	60	91	94
12	24	52	61	92	95
13	25	53	62	93	95
14	26	54	63	94	96
15	27	55	64	95	96
16	28	56	65	96	97
17	29	57	66	97	97
18	31	58	67	98	98
19	32	59	68	99	99
20	33	60	69	100	100
21	35	61	70	101	101
22	36	62	71	102	102
23	37	63	72	103	103
24	39	64	73	104	104
25	40	65	74	105	105
26	41	66	75	106	106
27	43	67	76	107	107
28	44	68	77	108	108
29	45	69	78	109	109
30	47	70	79	110	110
31	48	71	80	111	111
32	49	72	81	112	112
33	49	73	82	113	113
34	50	74	83	114	114
35	51	75	84	115	115
36	51	76	85	116	116
37	52	77	86	117	117
38	53	78	87		
39	53	79	88		

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*Based on results from the administration of both forms to 264 pupils in grades B1 through A3.

APPENDIX B

SUPPLEMENTARY TABLES

TABLE B-1

FIRST-LEVEL ANALYSIS OF ORAL LANGUAGE INTERVIEW INTO T-UNITS, MAZES, AND REPORTAGE RESPONSUMS STANDARD DEVIATIONS FOR GRADES A1, A2, A3; STANDARD DEVIATIONS FOR HIGH[a] AND LOW[b] READERS WITHIN EACH GRADE

Variable	Standard Deviations for Grade Levels			Standard Deviations for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of cases	82	84	92	28	27	28	28	31	31
Number of words in Oral Language Interview classified as:									
Mazes	22.6	24.5	20.3	19.8	29.1	21.5	30.8	19.7	17.5
Reportage responsums	34.1	26.0	19.7	35.2	36.7	26.2	26.1	17.9	21.3
T-units	55.7	61.9	55.7	42.3	60.8	51.2	71.8	59.8	50.7
Total number of words	6.4	7.7	6.0	4.4	7.0	5.9	9.0	6.9	5.6
Per cent of words in Oral Language Interview classified as:									
Mazes	7.2	7.8	6.5	6.5	9.2	6.8	9.8	6.0	5.6
Reportage responsums	15.0	11.7	12.0	12.3	17.2	9.3	14.1	12.8	10.9
T-units	14.7	11.0	10.9	9.9	14.8	9.9	13.5	11.1	9.8
Number of T-units	9.1	9.4	9.2	7.1	9.6	6.3	11.6	8.8	8.7
Mean length of:									
All T-units	1.3	1.3	1.5	1.1	1.3	1.0	1.6	2.0	1.2
Three longest T-units	3.2	3.9	3.4	2.8	3.5	2.7	3.9	4.1	2.7
Three longest T-units without variations	2.7	2.8	2.7	2.5	2.8	2.6	3.0	3.0	2.9

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

TABLE B-2

TYPES OF PREDICATION PATTERNS AND VERBS
STANDARD DEVIATIONS FOR GRADES A1, A2, A3; STANDARD DEVIATIONS FOR HIGH[a] AND LOW[b] READERS WITHIN EACH GRADE

Variable	Standard Deviations for Grade Levels			Standard Deviations for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	82	84	92	28	27	28	28	31	31
Predication patterns:									
Type I	14.9	14.8	12.4	13.3	16.8	13.5	16.6	15.0	10.0
Type II	5.8	8.8	6.4	6.9	4.7	6.0	12.2	5.2	8.0
Type III	5.5	4.5	4.2	4.0	6.7	4.8	4.1	4.3	4.5
Type IV	15.4	13.0	13.0	12.4	14.6	11.2	14.6	15.8	11.0
Type V	1.4	2.1	1.7	1.2	1.2	2.7	1.8	2.0	1.4
Type VI	3.2	3.6	4.5	2.3	3.8	3.7	3.0	5.2	3.7
Verbs									
Present tense	17.8	19.1	17.7	16.7	15.1	22.5	18.8	15.6	15.8
Present progressive	4.6	7.1	5.8	5.1	4.3	6.88	5.5	5.6	5.2
Past tense	11.0	12.7	14.2	12.8	7.6	16.4	10.7	10.3	11.4
Past progressive	4.5	2.9	3.9	3.9	2.7	3.3	2.2	3.7	4.1
Modal auxiliary + base form of verb	13.0	13.6	9.8	10.4	15.0	9.0	16.5	10.3	9.3
Modal auxiliary + infinitive	3.7	4.6	4.5	4.3	3.1	5.6	4.1	3.1	4.0
Variations of present and past progressive	1.6	1.9	1.9	1.6	1.6	2.1	2.3	1.9	2.3
Miscellaneous	1.7	1.5	3.1	1.6	1.8	1.5	1.5	3.1	3.0

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

TABLE B-3

TYPES OF ADVERBIALS
STANDARD DEVIATIONS FOR GRADES A1, A2, A3; STANDARD DEVIATIONS FOR HIGH[a] AND LOW[b] READERS WITHIN EACH GRADE

Variable	Standard Deviations for Grade Levels			Standard Deviations for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	82	84	92	28	27	28	28	31	31
Number of verbs	10.31	11.45	10.73	7.51	11.94	9.04	13.19	11.85	9.50
Number of verbs modified	5.92	7.16	6.34	4.42	6.11	6.38	8.15	6.60	5.59
Types of adverbials:									
Number of intensifiers	1.04	1.01	1.13	.98	1.23	1.00	.69	.74	1.33
Number of adverbs	6.88	8.15	6.58	6.06	7.03	9.56	7.56	6.84	6.28
Number of adverb phrases	3.21	3.81	3.73	3.55	2.91	3.15	4.21	3.63	3.67
Number of adverb clauses	1.87	2.08	1.97	1.69	1.36	1.85	2.31	1.87	2.01
Total number of adverbials	9.30	11.88	10.06	8.27	10.01	13.14	11.74	10.61	9.54
Ratios:									
Ratio of intensifiers/verbs	.03	.02	.03	.03	.03	.03	.02	.02	.03
Ratio of adverbs/verbs	.18	.19	.17	.17	.19	.21	.19	.18	.14
Ratio of adverb phrases/verbs	.09	.09	.09	.10	.09	.08	.10	.08	.10
Ratio of adverb clauses/verbs	.05	.06	.05	.05	.06	.04	.07	.04	.05
Ratio of adverbials/verbs modified	.27	.23	.27	.22	.22	.28	.22	.31	.22

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[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

TABLE B-4

TYPES OF NOMINALS USED
STANDARD DEVIATIONS FOR GRADES A1, A2, A3; STANDARD DEVIATIONS FOR HIGH[a] AND LOW[b] READERS WITHIN EACH GRADE

Variable	Standard Deviations for Grade Levels			Standard Deviations for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of cases	82	84	92	28	27	28	28	31	31
Number of nominals of:									
Type Ia (single-word nominals, nouns + determiners, proper names)	14.8	16.9	15.1	11.3	16.0	13.7	19.7	15.4	12.6
Type Ib (unmodified noun adjuncts)	.8	.9	.7	.8	.9	.7	.7	.5	.6
Type IIa (one adjective modifier + Ia or Ib)	2.7	2.9	3.4	2.5	2.4	2.8	3.0	3.0	3.3
Type IIc (simple prepositional phrase modifier)	1.2	1.1	1.2	1.3	1.1	.9	1.3	1.3	1.4
Type IIIb (nouns, noun adjuncts or pronouns inflected as possessives)	2.0	2.3	1.9	2.5	1.4	2.5	2.0	2.0	1.8
All other types	1.6	1.6	2.6	1.7	1.5	1.4	1.9	2.1	3.2
Total number of nominals	18.6	20.3	17.9	16.6	19.0	15.5	24.5	19.2	15.1
Per cent of unmodified nominals (Ia and Ib)	11.3	8.1	7.9	6.0	7.6	6.1	9.7	7.3	7.6

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[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

TABLE B-5

MEASURES OF SUBORDINATION
STANDARD DEVIATIONS FOR GRADES A1, A2, A3; STANDARD DEVIATIONS FOR HIGH[a] AND LOW[b] READERS WITHIN EACH GRADE

Variable	Standard Deviations for Grade Levels			Standard Deviations for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	82	84	92	28	27	28	28	31	31
Number of:									
Adverb clauses	1.87	2.08	1.97	1.69	2.23	1.85	2.31	1.87	2.01
Adjective clauses	1.05	.85	1.23	.82	1.24	.69	.92	1.22	1.01
Noun clauses	1.46	1.55	1.62	1.23	1.36	1.50	1.10	1.81	1.59
Main and subordinate clauses	10.01	10.92	10.55	7.12	11.42	8.57	12.65	11.28	9.55
T-units	9.11	9.42	9.21	7.14	9.59	6.34	11.57	8.81	8.72
T-unit words	6.4	7.7	6.0	4.4	7.0	5.4	9.0	6.9	5.6
Verbals	1.32	2.03	1.70	1.22	1.50	2.31	1.22	1.83	1.77
Ratios:									
Number of clauses per T-unit	1.67	1.37	1.10	.86	1.28	.92	1.36	1.07	1.09
Average length of clause	.92	.93	.84	.74	.79	.72	.95	.74	.78

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

TABLE B-6

MEASURES OF VARIETY
STANDARD DEVIATIONS FOR GRADES A1, A2, A3; STANDARD DEVIATIONS FOR HIGH[a] AND LOW[b] READERS WITHIN EACH GRADE

Variable	Standard Deviations for Grade Levels			Standard Deviations for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	82	84	92	28	27	28	28	31	31
Number of:									
Predication patterns x verb types used	3.93	3.21	3.37	2.71	4.64	2.40	3.62	3.23	3.55
Adverbial types x position combinations used	1.41	1.51	1.59	1.41	.97	1.17	1.80	1.63	1.57
Nominal types used	1.59	1.73	1.64	1.67	1.63	1.20	2.01	1.48	1.76
Nominals of infrequently used types	1.62	1.63	2.63	1.73	1.55	1.40	1.91	2.06	3.16
Different adjectives used	3.29	3.77	4.18	3.16	3.50	2.96	4.64	4.18	4.06
Types of compounds used	.70	.63	.77	.72	.63	.57	.69	.67	.95
Types of verbals used	1.18	1.54	1.39	1.12	1.03	1.83	1.13	1.72	1.41
Number of different uncommon:									
Prepositions used	1.00	1.93	1.25	.90	1.12	1.61	1.04	1.21	1.49
Adverbs used	2.53	2.76	2.72	2.38	2.59	2.87	2.62	3.61	2.04
Intensifiers used	.55	.59	.82	.64	.45	.48	.50	.43	.62

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

TABLE B-7

VARIATIONS FROM STANDARD ENGLISH
COMPARISON OF GRADE LEVEL MEANS AND COMPARISON OF MEANS FOR HIGH^{a} AND LOW^{b} READERS WITHIN EACH GRADE

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	55	56	62	28	27	28	28	31	31
Verb variations:									
Lack of agreement of subject and verb									
Forms of verb "to be"	.15	.15	.35	.15	.15	.19	.11	.48	.22
Other verbs:									
3rd person singular	1.49	1.35	1.77	1.00	2.00	1.08	1.63	1.19	1.30
Other forms	.06	.04	.10	.07	.04	.04	.04	.04	.15
Inconsistency in use of tense	.58	.58	.47	.48	.70	.48	.70	.41	.52
Omission of auxiliary verbs	.36	.15	.13	.44	.26	.19	.11	.15	.11
Nonstandard use of verb forms	1.86	1.17	1.58	1.78	1.96	.85	1.48	1.33	1.82
Omission of verb "to be"	.44	.63	.37	.41	.48	.67	.59	.30	.44
Total number of verb variations	4.94	4.07	4.77	4.33	5.59	3.50	4.66	3.90	4.56
Pronoun variations:									
Nonstandard or confusing use of pronouns	.38	.26	.23	.56	.19	.30	.22	.15	.30
Omission of pronouns	1.86	1.10	.75	1.67	2.07	.89	1.30	.93	1.22
Syntactic confusion:									
Ambiguous placement of a word, phrase or clause	.05	.07	.17	.04	.07	.07	.07	.19	.15
Awkward arrangement or incoherence	.77	.91	.65	.74	.81	.81	1.00	.59	.70
Omission (except of auxiliary verbs or pronouns)	1.33	1.20	1.07	1.19	1.48	.81	1.59	1.04	1.10
Unnecessary repetition	1.14	1.41	1.02	1.14	1.15	1.82	1.00	.82	1.22

TABLE B-7 (CONTINUED)

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	55	56	62	28	27	28	28	31	31
Other variations:									
Nonstandard connectives									
Prepositions	.32	.26	.32	.33	.30	.26	.26	.26	.37
Conjunctions	.15	.11	.06	.15	.15	.00	.22	.07	.04
Nonstandard modifications									
Adjectival	.32	.30	.35	.33	.30	.44	.15	.33	.37
Adverbial	.46	.71	.43	.44	.48	.85	.56	.33	.52
Nonstandard noun forms	.43	.33	.36	.41	.45	.33	.33	.15	.56
Double negatives and nonstandard use of possessives	.17	.17	.13	.30	.04	.19	.15	.19	.07
Total number of variations	12.32	10.90	9.77	11.63	13.08	10.27	11.51	9.02	11.18
Number of T-unit words	167.6	177.7	193.9	185.4	149.5	188.4	167.0	188.8	198.9

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

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TABLE B-8

VARIATIONS FROM STANDARD ENGLISH
STANDARD DEVIATIONS FROM GRADES A1, A2, A3; STANDARD DEVIATIONS FOR HIGH[a] AND LOW[b] READERS WITHIN EACH GRADE

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	55	56	62	28	27	28	28	31	31
Verb variations:									
Lack of agreement of subject and verb									
Forms of verb "to be"	.40	.37	.73	.45	.36	.39	.31	.88	.50
Other verbs									
3rd person singular	2.00	2.10	1.52	1.31	2.39	1.21	2.67	1.28	1.58
Other forms	.30	.19	.35	.38	.19	.19	.19	.19	.44
Inconsistency in use of tense	.93	.95	.71	.78	1.05	.74	1.12	.63	.79
Omission of auxiliary verbs	.97	.37	.43	1.26	.52	.39	.31	.52	.32
Nonstandard use of verb forms	2.09	1.65	1.52	2.16	2.00	1.19	1.95	1.57	1.42
Omission of the verb "to be"	.84	1.07	.68	.67	.88	1.16	.99	.53	.79
Pronoun variations:									
Nonstandard or confusing use of pronouns	.62	.44	.46	.74	.39	.46	.41	.36	.53
Omission of pronouns	2.41	1.78	1.81	1.72	2.93	1.13	2.22	1.11	2.29
Syntactic confusion:									
Ambiguous placement of a word, phrase, or clause	.33	.33	.54	.27	.38	.26	.38	.47	.59
Awkward arrangement or incoherence	.90	1.11	1.02	1.04	.86	.96	1.25	.78	1.24
Omission (except of auxiliary verbs or pronouns)	1.44	1.50	1.24	1.62	1.57	1.19	1.66	1.20	1.57
Unnecessary repetition	1.50	2.76	1.16	.96	1.92	3.65	1.30	.98	1.29

TABLE B-8 (CONTINUED)____

Variable	Comparison of Means by Grade			Comparison of Means for High and Low Readers					
				A1		A2		A3	
	A1	A2	A3	High	Low	High	Low	High	Low
Number of Cases	55	56	62	28	27	28	28	31	31
Other variations:									
Nonstandard connectives									
Prepositions	.62	.52	.74	.55	.71	.52	.57	.44	.33
Conjunctions	.36	.42	.30	.36	.36	.00	.60	.38	.19
Nonstandard modification									
Adjectival	.59	.56	.74	.55	.66	.63	.46	.81	.70
Adverbial	.84	2.64	.71	.69	.96	3.59	1.12	.72	.69
Nonstandard noun forms	.68	.61	.73	.73	.64	.61	.68	.36	.92
Double negatives and nonstandard use of possessives	.54	.46	.39	.71	.19	.47	.46	.47	.26
Total number of variations	5.28	6.98	5.35	6.54	5.31	5.29	7.91	5.81	5.83

[a] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the highest third of their grade.

[b] Mexican-American pupils whose corrected raw scores on Total Reading, Stanford Primary I, placed them in the lowest third of their grade.

TABLE B-9

Stanford Achievement Test Grade Scores for A1 Pupils (Primary I, Form W), 1966 - 1968.

Sub-Test and Date of Administration	N	Percentile					Q	P_{90}-P_{10}
		90	75	50	25	10		
Word Reading								
May, 1966	142	1.5	1.3	1.2	1.1	1.0	.10	.5
Jan., 1967	72	1.7	1.4	1.3	1.1	1.0	.15	.7
May, 1967	132	1.7	1.4	1.3	1.1	1.0	.15	.7
Jan., 1968	77	1.9	1.7	1.5	1.1	1.0	.30	.9
May, 1968	129	1.9	1.7	1.4	1.2	1.0	.25	.9
Paragraph Meaning								
May, 1966	140	1.6	1.5	1.4	1.4	1.1	.05	.5
Jan., 1967	74	1.6	1.5	1.4	1.2	1.0	.15	.6
May, 1967	126	2.0	1.6	1.5	1.4	1.1	.10	.9
Jan., 1968	74	1.8	1.7	1.6	1.3	1.0	.20	.8
May, 1968	120	1.8	1.6	1.5	1.4	1.1	.10	.7
Total Reading								
May, 1966	139	1.5	1.4	1.3	1.2	1.1	.10	.4
Jan., 1967	71	1.7	1.5	1.4	1.2	1.0	.15	.7
May, 1967	118	1.8	1.6	1.4	1.2	1.0	.20	.8
Jan., 1968	74	1.9	1.7	1.5	1.2	1.0	.25	.9
May, 1968	120	1.8	1.6	1.5	1.3	1.1	.15	.7
Vocabulary								
May, 1966	127	1.7	1.4	1.3	1.2	1.1	.10	.6
Jan., 1967	44*	1.5	1.5	1.3	1.2	1.1	.15	.4
May, 1967	131	2.4	1.7	1.4	1.3	1.1	.20	1.3
Jan., 1968	75	2.4	1.7	1.4	1.3	1.1	.20	1.3
May, 1968	128	1.9	1.5	1.3	1.2	1.1	.15	.8
Word Study Skills								
May, 1966	118	1.5	1.3	1.3	1.2	1.1	.05	.4
Jan., 1967	44*	1.5	1.3	1.3	1.2	1.1	.05	.4
May, 1967	126	1.7	1.4	1.3	1.2	1.1	.10	.6
Jan., 1968	77	2.0	1.7	1.4	1.2	1.1	.25	.9
May, 1968	128	1.9	1.6	1.3	1.3	1.2	.15	.7

*The sub-tests on Vocabulary and Word Study Skills were not administered to all A1 classes in Jan., 1967.

TABLE B-10

Stanford Achievement Test Corrected* Scores for A1 Pupils (Primary I, Form W), 1966 - 1968

Sub-Test and Date of Administration	N	Percentile					Q	$P_{90}-P_{10}$
		90	75	50	25	10		
Word Reading								
May, 1966	142	7.6	2.6	1.6	-1.0	-2.4	1.8	10.0
Jan., 1967	72	9.0	4.5	1.5	-0.1	-1.1	2.3	10.1
May, 1967	132	13.4	7.5	3.2	0.0	-1.9	3.8	15.3
Jan., 1968	77	19.9	14.7	8.4	1.8	-1.3	6.5	21.2
May, 1968	129	21.6	14.5	6.6	2.5	0.1	6.0	21.5
Paragraph Meaning								
May, 1966	140	6.1	3.5	0.6	-1.1	-3.0	2.8	9.1
Jan., 1967	74	5.9	2.3	0.0	-0.7	-1.9	1.5	7.8
May, 1967	126	13.7	8.3	1.6	-0.6	-1.8	4.5	15.5
Jan., 1968	74	20.3	14.3	5.5	1.2	0.2	6.6	20.1
May, 1968	120	20.5	10.5	4.4	.6	-1.3	5.0	21.8
Total Reading								
May, 1966	139	13.3	5.9	1.3	-1.3	-3.1	3.6	16.4
Jan., 1967	71	10.4	5.8	1.8	-1.3	-4.7	3.6	15.1
May, 1967	118	26.9	15.6	4.7	-0.2	-3.5	7.9	30.4
Jan., 1968	74	40.1	26.8	15.0	3.7	0.2	11.6	39.9
May, 1968	120	38.5	25.5	11.5	3.6	0.1	11.0	38.4
Vocabulary								
May, 1966	127	9.6	5.1	0.7	-0.7	-5.2	2.9	14.8
Jan., 1967	44**	11.2	8.0	3.5	0.8	-3.0	3.6	14.2
May, 1967	131	14.0	5.6	1.1	-1.7	-4.5	3.7	18.5
Jan., 1968	75	19.1	10.1	3.1	-0.2	-0.5	5.2	19.6
May, 1968	128	13.7	7.3	2.5	2.1	-5.0	4.7	18.7
Word Study Skills								
May, 1966	118	15.0	8.5	4.8	0.0	-2.9	4.3	18.0
Jan., 1967	44**	15.4	13.0	6.0	2.8	-2.1	5.1	17.5
May, 1967	126	15.4	11.2	6.0	1.3	-4.1	5.0	19.5
Jan., 1968	77	28.6	21.4	8.7	2.6	-2.1	9.4	30.7
May, 1968	128	25.7	17.8	8.4	2.8	-0.9	7.5	26.6

* Raw scores corrected for random guessing.

**The subtests on Vocabulary and Word Study Skills were not administered to all A1 classes in January, 1967.

TABLE B-11

Stanford Achievement Test Grade Scores for A2 Pupils (Primary I, Form X), 1966 - 1968

Sub-Test and Date of Administration	N	Percentile					Q	$P_{90}-P_{10}$
		90	75	50	25	10		
Word Reading								
May, 1966	125	2.4	1.7	1.5	1.3	1.1	.20	1.3
Jan., 1967	63	2.3	1.7	1.5	1.4	1.2	.15	1.1
May, 1967	112	2.4	1.7	1.6	1.4	1.1	.15	1.3
Jan., 1968	83	2.6	2.0	1.7	1.4	1.2	.30	1.4
May, 1968	116	2.9	2.4	1.8	1.6	1.4	.40	1.5
Paragraph Meaning								
May, 1966	122	2.5	1.8	1.6	1.5	1.3	.15	1.2
Jan., 1967	62	2.6	1.8	1.6	1.4	1.3	.20	1.3
May, 1967	112	2.5	1.8	1.6	1.5	1.3	.15	1.2
Jan., 1968	81	2.5	1.8	1.6	1.4	1.3	.20	1.2
May, 1968	116	2.9	2.3	1.8	1.6	1.4	.35	1.5
Total Reading								
May, 1966	121	2.4	1.8	1.6	1.4	1.3	.20	1.1
Jan., 1967	62	2.5	1.7	1.6	1.4	1.4	.15	1.1
May, 1967	112	2.3	1.8	1.6	1.4	1.3	.20	1.0
Jan., 1968	81	2.6	1.9	1.6	1.5	1.4	.20	1.2
May, 1968	116	2.8	2.3	1.8	1.6	1.5	.35	1.3
Vocabulary								
May, 1966	113	2.5	1.9	1.5	1.3	1.2	.30	1.3
Jan., 1967	63	2.4	2.1	1.5	1.4	1.2	.35	1.2
May, 1967	111	2.2	1.7	1.4	1.3	1.2	.20	1.0
Jan., 1968	86	2.2	1.7	1.5	1.3	1.2	.20	1.0
May, 1968	116	2.5	2.0	1.6	1.4	1.3	.30	1.2
Word Study Skills								
May, 1966	114	2.0	1.8	1.5	1.3	1.1	.25	.9
Jan., 1967	63	2.4	2.0	1.5	1.3	1.2	.35	1.2
May, 1967	111	2.1	1.8	1.5	1.3	1.2	.25	.9
Jan., 1968	86	2.3	1.8	1.4	1.3	1.2	.25	1.1
May, 1968	116	3.2	2.5	1.9	1.5	1.2	.50	2.0

TABLE B-12

Stanford Achievement Test Corrected* Scores for A2 Pupils (Primary I, Form X), 1966 - 1968

Sub-Test and Date of Administration	N	Percentile					Q	P_{90}-P_{10}
		90	75	50	25	10		
Word Reading								
May, 1966	125	28.0	16.4	10.1	4.0	0.4	6.2	27.6
Jan., 1967	63	26.4	15.3	10.3	5.6	0.2	4.9	26.2
May, 1967	112	27.4	15.5	9.9	3.9	-0.8	5.8	28.2
Jan., 1968	83	30.2	21.6	12.0	6.7	0.4	7.5	30.6
May, 1968	116	31.9	26.5	17.5	11.0	6.1	7.8	25.8
Paragraph Meaning								
May, 1966	122	29.9	17.7	9.0	2.9	-0.4	7.4	30.3
Jan., 1967	62	31.9	18.8	8.5	3.0	-1.3	7.9	33.2
May, 1967	112	29.8	17.3	6.7	1.0	-2.7	8.2	32.5
Jan., 1968	81	30.0	18.4	9.3	1.9	-1.5	8.3	28.5
May, 1968	116	33.9	27.3	17.2	9.3	2.1	9.0	31.8
Total Reading								
May, 1966	121	56.4	33.4	16.8	8.9	1.5	12.3	54.9
Jan., 1967	62	57.3	29.3	19.2	8.3	0.8	10.5	56.5
May, 1967	112	53.3	30.5	15.8	5.3	-1.9	12.6	55.2
Jan., 1968	81	60.4	38.9	19.0	9.1	2.1	14.9	58.3
May, 1968	116	64.7	53.8	35.0	17.3	11.1	18.3	53.6
Vocabulary								
May, 1966	113	18.8	10.2	3.6	-0.5	-5.1	5.4	23.9
Jan., 1967	63	19.2	12.8	3.9	0.1	-4.3	6.4	23.5
May, 1967	111	18.8	10.0	3.4	0.7	-2.4	4.7	21.2
Jan., 1968	86	15.3	8.0	3.0	-1.0	-4.0	4.5	19.3
May, 1968	116	18.6	11.5	6.3	2.5	-2.9	4.5	21.5
Word Study Skills								
May, 1966	114	29.9	23.8	14.5	6.1	-0.7	8.9	30.6
Jan., 1967	63	36.2	29.6	17.3	9.9	1.7	9.9	34.5
May, 1967	111	32.9	23.3	14.2	5.4	1.9	9.0	31.0
Jan., 1968	86	35.0	23.0	12.4	6.0	0.7	8.5	35.7
May, 1968	116	44.3	38.0	25.8	13.0	5.3	12.5	39.0

*Raw scores corrected for random guessing.

TABLE B-13

Stanford Achievement Test Grade Scores for A2 Pupils
(Primary II, Form W), 1966 - 1968

Sub-Test and Date of Administration	N	Percentile					Q	P_{90}-P_{10}
		90	75	50	25	10		
Word Meaning								
May, 1966	118	2.6	1.9	1.7	1.5	1.2	.20	1.4
Jan., 1967	72	2.3	1.8	1.6	1.3	1.0	.25	1.3
May, 1967	116	2.5	2.0	1.8	1.5	1.3	.25	1.2
Jan., 1968	79	2.5	2.0	1.7	1.4	1.2	.30	1.3
May, 1968	116	2.6	2.1	1.8	1.5	1.3	.30	1.3
Paragraph Meaning								
May, 1966	123	2.4	1.9	1.7	1.5	1.3	.20	1.1
Jan., 1967	73	2.4	1.8	1.6	1.5	1.0	.15	1.4
May, 1967	124	2.2	1.9	1.7	1.5	1.2	.20	1.0
Jan., 1968	81	2.2	1.8	1.7	1.5	1.2	.15	1.0
May, 1968	116	2.5	2.1	1.8	1.6	1.3	.25	1.2
Total Reading								
May, 1966	118	2.6	1.9	1.7	1.6	1.4	.15	1.2
Jan., 1967	71	2.2	1.9	1.6	1.5	1.2	.20	1.0
May, 1967	124	2.3	1.9	1.7	1.5	1.3	.20	1.0
Jan., 1968	78	2.4	1.8	1.7	1.5	1.3	.15	1.1
May, 1968	116	2.5	2.1	1.8	1.6	1.4	.25	1.1
Word Study Skills								
May, 1966	105	2.3	2.0	1.6	1.4	1.3	.30	1.0
Jan., 1967	67	2.2	1.9	1.6	1.4	1.3	.25	.9
May, 1967	127	2.5	2.0	1.6	1.5	1.3	.25	1.2
Jan., 1968	82	2.5	2.0	1.7	1.4	1.3	.30	1.2
May, 1968	116	2.8	2.4	1.8	1.5	1.2	.45	1.6

TABLE B-14

Stanford Achievement Test Corrected* Scores for A2 Pupils (Primary II, Form W), 1966 - 1968

Sub-Test and Date of Administration	N	Percentile					Q	P_{90}-P_{10}
		90	75	50	25	10		
Word Meaning								
May, 1966	118	9.3	4.3	1.1	-0.9	-2.5	2.6	11.8
Jan., 1967	72	7.8	4.8	1.5	-0.2	-1.9	2.5	9.7
May, 1967	116	9.0	4.9	2.1	-0.2	-1.8	2.6	10.8
Jan., 1968	79	10.4	5.1	1.4	-0.3	-1.9	2.7	12.3
May, 1968	116	11.4	7.5	3.0	0.6	-1.6	3.5	12.0
Paragraph Meaning								
May, 1966	123	15.2	6.9	2.4	-0.8	-4.1	3.9	19.3
Jan., 1967	72	15.4	5.8	0.8	-2.4	-4.8	4.1	20.2
May, 1967	124	15.1	5.5	1.5	-0.4	-3.6	3.0	18.7
Jan., 1968	81	14.0	6.7	1.9	-1.2	-4.5	4.0	18.5
May, 1968	116	21.7	12.2	3.6	-0.6	-3.0	6.4	24.7
Total Reading								
May, 1966	118	24.1	9.6	3.1	-1.6	-4.2	5.6	28.3
Jan., 1967	72	23.2	7.2	1.8	-1.2	-4.4	4.2	27.7
May, 1967	124	22.1	8.5	3.4	0.4	-2.7	4.1	27.8
Jan., 1968	78	25.7	9.7	3.3	-0.7	-4.2	5.2	26.4
May, 1968	116	32.6	19.1	6.6	0.8	-4.0	9.2	36.6
Word Study Skills								
May, 1966	105	16.0	10.4	3.9	-1.6	-6.0	6.0	22.0
Jan., 1967	65	15.8	10.8	2.5	-3.7	-7.0	7.3	22.8
May, 1967	127	22.1	8.5	3.4	0.4	-2.7	4.1	24.8
Jan., 1968	82	19.3	10.9	5.0	0.3	-5.3	5.3	19.6
May, 1968	116	26.7	18.9	8.9	1.6	-3.8	8.7	30.5

*Raw scores corrected for random guessing.

TABLE B-15

Stanford Achievement Test Grade Scores for A3 Pupils (Primary I, Form Y), 1966 - 1968

Sub-Test and Date of Administration	N	Percentile					Q	$P_{90}-P_{10}$
		90	75	50	25	10		
Word Reading								
May, 1966	110	3.4	2.7	2.0	1.5	1.4	.60	2.0
Jan., 1967	66	3.6	3.1	2.3	1.6	1.3	.75	2.3
May, 1967	116	3.6	3.1	2.2	1.7	1.5	.70	2.1
Jan., 1968	70	3.6	3.1	2.4	1.7	1.5	.70	2.1
May, 1968	109	3.6	3.2	2.5	2.0	1.6	.60	2.0
Paragraph Meaning								
May, 1966	110	2.9	2.7	1.9	1.6	1.4	.55	1.5
Jan., 1967	66	3.3	2.8	2.2	1.5	1.4	.65	1.9
May, 1967	116	3.1	2.7	2.2	1.7	1.5	.50	1.6
Jan., 1968	70	3.6	2.8	2.2	1.7	1.6	.55	2.0
May, 1968	109	3.1	2.8	2.4	1.8	1.6	.50	1.5
Total Reading								
May, 1966	108	3.1	2.7	2.0	1.6	1.4	.55	1.7
Jan., 1967	65	3.4	2.9	2.2	1.5	1.4	.70	2.0
May, 1967	116	3.2	2.7	2.2	1.7	1.5	.50	1.7
Jan., 1968	70	3.4	2.8	2.3	1.7	1.6	.55	1.8
May, 1968	109	3.3	3.0	2.5	1.7	1.6	.65	1.7
Vocabulary								
May, 1966	109	3.6	2.9	2.2	1.6	1.4	.65	2.2
Jan., 1967	66	4.8	2.6	2.0	1.5	1.3	.55	3.5
May, 1967	115	4.4	2.6	2.2	1.6	1.3	.50	3.1
Jan., 1968	69	3.1	2.6	2.1	1.6	1.4	.50	1.7
May, 1968	109	4.4	2.9	2.2	1.8	1.5	.55	2.9
Word Study Skills								
May, 1966	96	3.2	2.6	1.9	1.5	1.4	.55	1.8
Jan., 1967	67	3.9	2.8	1.8	1.4	1.2	.70	2.7
May, 1967	115	3.4	2.6	1.9	1.5	1.3	.55	2.1
Jan., 1968	70	3.9	2.8	2.0	1.5	1.4	.65	2.5
May, 1968	109	5.2	3.4	2.5	1.8	1.5	.80	3.7

TABLE B-16

Stanford Achievement Test Corrected* Scores for A3 Pupils
(Primary I, Form Y), 1966 - 1968

Sub-Test and Date of Administration	N	Percentile					Q	P_{90}-P_{10}
		90	75	50	25	10		
Word Meaning								
May, 1966	110	34.5	30.2	19.0	8.3	3.9	11.0	30.6
Jan., 1967	65	35.0	32.4	22.8	9.6	2.7	11.4	32.3
May, 1967	116	34.7	31.5	21.9	13.8	7.1	8.9	27.6
Jan., 1968	70	34.8	31.6	25.8	12.4	9.5	9.6	25.3
May, 1968	109	34.9	33.7	27.4	19.1	11.1	7.3	23.8
Paragraph Meaning								
May, 1966	110	33.1	29.9	18.3	8.0	0.7	11.0	32.4
Jan., 1967	65	35.2	30.9	21.8	4.6	0.8	13.2	34.4
May, 1967	116	34.1	29.8	21.8	9.3	0.8	10.3	33.3
Jan., 1968	70	36.7	30.7	21.8	11.8	4.8	9.5	31.9
May, 1968	109	34.4	31.5	25.3	14.8	6.2	8.4	26.0
Total Reading								
May, 1966	108	66.1	59.0	38.5	17.5	6.9	20.8	59.2
Jan., 1967	64	70.4	63.5	43.8	10.0	5.2	26.8	65.2
May, 1967	116	68.2	59.5	41.8	22.0	9.1	18.8	59.1
Jan., 1968	70	69.5	61.0	47.0	25.0	12.8	18.0	56.7
May, 1968	109	69.0	64.6	53.0	33.6	18.0	15.5	53.5
Vocabulary								
May, 1966	109	29.1	25.7	16.9	8.2	2.4	8.8	26.7
Jan., 1967	66	28.4	22.4	15.0	4.4	-0.2	9.0	28.6
May, 1967	115	31.3	24.2	18.7	10.2	3.2	7.0	28.1
Jan., 1968	70	26.5	21.7	14.8	7.2	3.0	7.3	23.5
May, 1968	109	30.5	24.1	16.0	10.1	4.5	7.0	23.5
Word Study Skills								
May, 1966	96	44.0	39.0	28.7	17.4	10.8	10.8	33.2
Jan., 1967	66	46.7	40.8	25.8	14.7	6.1	13.1	40.6
May, 1967	115	46.9	40.0	29.1	22.9	15.0	8.6	31.9
Jan., 1968	70	46.8	40.0	30.5	17.8	11.0	11.1	35.8
May, 1968	109	50.0	44.8	35.0	25.6	15.5	9.6	34.5

*Raw scores corrected for random guessing.

TABLE B-17

Stanford Achievement Test Grade Scores for A3 Pupils (Primary II, Form X), 1966 - 1968

Sub-Test and Date of Administration	N	Percentile					Q	$P_{90}-P_{10}$
		90	75	50	25	10		
Word Meaning								
May, 1966	112	3.3	2.7	2.1	1.8	1.7	.45	1.6
Feb., 1967	65	4.0	3.0	2.3	1.8	1.7	.60	2.3
May, 1967	115	3.5	2.8	2.3	1.9	1.7	.45	1.8
Feb., 1968	69	3.6	2.9	2.3	1.9	1.7	.50	1.9
May, 1968	108	3.3	2.8	2.5	1.9	1.7	.45	1.6
Paragraph Meaning								
May, 1966	114	3.1	2.7	2.0	1.7	1.6	.50	1.5
Feb., 1967	65	4.2	3.1	2.0	1.7	1.6	.70	2.6
May, 1967	115	3.4	2.9	2.2	1.8	1.6	.55	1.8
Feb., 1968	69	3.2	2.8	2.4	1.9	1.7	.45	1.5
May., 1968	108	3.1	2.9	2.5	1.8	1.7	.55	1.4
Total Reading								
May, 1966	112	3.0	2.7	2.0	1.8	1.7	.45	1.3
Feb., 1967	65	4.0	3.0	2.0	1.8	1.7	.65	2.3
May, 1967	115	3.3	2.8	2.2	1.8	1.7	.45	1.6
Feb., 1968	69	3.3	2.8	2.4	1.9	1.7	.45	1.6
May, 1968	108	3.2	2.8	2.4	1.8	1.7	.50	1.5
Word Study Skills								
May, 1966	110	2.9	2.4	2.1	1.6	1.4	.40	1.5
Feb., 1967	65	3.4	2.4	1.9	1.6	1.4	.40	2.0
May, 1967*								
Feb., 1968	69	3.4	2.7	2.1	1.8	1.5	.45	1.9
May, 1968	108	5.2	3.5	2.5	2.0	1.6	.75	3.6

*This sub-test was not administered to a majority of A3 pupils in May, 1967.

TABLE B-18

Stanford Achievement Test Corrected* Scores for A3 Pupils (Primary II, Form X), 1966 - 1968

Sub-Test and Date of Administration	N	Percentile 90	75	50	25	10	Q	P_{90}-P_{10}
Word Meaning								
May, 1966	112	16.9	11.0	4.2	1.3	-1.4	4.9	18.3
Jan., 1967	65	24.9	16.0	5.8	2.4	-0.3	6.8	25.2
May, 1967	115	18.6	12.0	5.3	1.0	-0.8	5.5	17.8
Jan., 1968	69	19.5	12.1	5.3	2.2	-0.3	5.0	19.8
May, 1968	108	17.3	12.3	7.4	3.5	-0.3	4.4	17.6
Paragraph Meaning								
May, 1966	114	29.3	20.0	5.2	0.4	-2.4	9.8	31.7
Jan., 1967	65	41.9	25.0	9.1	-0.3	-3.3	12.7	45.2
May, 1967	115	32.5	22.3	8.6	1.3	-2.8	10.5	29.7
Jan., 1968	69	31.1	20.3	12.0	3.2	-0.8	8.6	31.9
May, 1968	108	31.7	23.1	14.8	3.7	-0.6	9.7	32.3
Total Reading								
May, 1966	112	41.4	31.0	9.5	2.5	-2.4	14.3	43.8
Jan., 1967	65	67.0	40.3	13.3	2.9	-2.0	18.7	69.0
May, 1967	115	50.7	32.9	13.8	3.4	-1.8	14.8	48.9
Jan., 1968	69	48.1	34.4	18.8	5.3	0.4	14.6	47.7
May, 1968	108	47.6	34.0	22.8	7.5	0.1	13.3	47.5
Word Study Skills								
May, 1966	110	23.0	14.9	9.5	2.0	-3.5	6.5	26.5
Jan., 1967	65	29.0	15.4	6.8	0.2	-4.0	7.6	33.0
May, 1967**								
Jan., 1968	69	33.6	21.9	11.0	3.9	-0.5	9.0	34.1
May, 1968	108	44.7	31.2	15.9	8.0	0.8	11.6	43.9

* Raw scores corrected for random guessing.

**Due to administrative error, this sub-test was not administered to a majority of A3 pupils in May, 1967.

TABLE B-19

Sight Vocabulary Test Scores for Primary Grade Pupils, 1966 - 1968

Sub-Test and Date of Administration	N	Percentile					Q	$P_{90}-P_{10}$
		90	75	50	25	10		
B1								
May, 1966	95	20.0	12.8	3.2	0.0	0.0	6.4	20.0
Jan., 1967	127	36.7	25.3	17.9	8.8	1.6	8.3	35.1
May, 1967	63	58.9	50.1	27.0	8.9	0.3	20.6	58.6
Jan., 1968	114	64.1	44.0	25.1	10.3	3.1	16.8	61.0
May, 1968	63	53.4	36.5	20.2	8.1	2.4	14.2	51.0
A1								
May, 1966	115	53.0	39.6	16.2	3.4	0.0	18.1	53.0
Jan., 1967	80	70.0	44.1	25.4	13.7	6.3	15.2	63.7
May, 1967	136	83.9	62.5	50.3	25.2	16.1	18.7	77.8
Jan., 1968	59	86.6	76.1	50.0	23.4	14.4	26.4	72.2
May, 1968	123	94.2	75.1	50.3	20.4	7.6	27.4	86.6
B2								
May, 1966	62	81.3	56.2	37.5	19.2	3.7	18.5	77.6
Jan., 1967	121	91.0	69.3	35.0	20.4	10.0	24.5	81.0
May, 1967	69	109.6	90.9	57.3	36.8	19.4	27.1	90.2
Jan., 1968	36*	116.0	111.5	77.0	57.0	27.1	27.3	88.9
May, 1968	67	114.0	109.2	75.1	44.2	22.0	32.5	92.0
A2								
May, 1966	118	113.7	101.2	67.5	45.8	23.9	27.7	89.8
Jan., 1967	71	114.1	88.5	58.4	37.3	24.2	25.6	89.9
May, 1967	102	112.1	92.4	70.0	41.6	21.4	25.4	90.7
Jan., 1968	66	112.2	94.3	76.5	55.9	32.1	19.2	80.1
May, 1968	117	115.7	110.3	90.0	50.3	11.9	30.0	103.8
B3								
May, 1966	67	115.2	109.8	72.0	43.2	23.2	33.3	81.9
Jan., 1967	102	115.2	108.4	78.5	50.8	38.7	28.8	86.4
May, 1967	56	115.9	113.2	97.5	56.5	46.1	28.4	87.5
Jan., 1968	93	115.9	114.8	96.0	71.1	41.7	21.9	94.0
May, 1968	78	115.8	114.4	93.4	61.2	45.2	26.6	89.2
A3								
May, 1966	108	115.9	113.8	97.5	66.0	47.4	23.9	68.5
Jan., 1967	67	116.0	115.7	98.4	58.4	33.3	28.7	82.7
May, 1967	110	116.0	115.2	108.3	78.1	51.2	18.6	64.8
Jan., 1968	65	115.0	114.1	106.0	72.7	53.0	20.7	62.0
May, 1968	123	116.0	115.0	111.9	99.3	75.8	7.9	40.2

*The Sight Vocabulary Test was administered to less than a majority of pupils at the B2 grade level in Jan., 1968.

NUMERICAL CODE FOR VARIABLES IN TABLE B-20

1. Number of verb variations
2. Percentage of structural patterns of Type II (subject + linking verb + predicate adjective)
3. Percentage of structural patterns of Type III (subject + linking verb + predicate nominative)
4. Percentage of structural patterns of Type V (subject + transitive verb + indirect object + direct object)
5. Total number of variations from standard English
6. Number of adverbials
7. Number of verbs
8. Ratio of adverbials/verbs modified
9. Number of adverbs
10. Number of adverb phrases
11. Predication patterns X verb types
12. Number of nominal types used
13. Number of different adjectives used
14. Number of adverbial types X position combinations
15. Chronological age
16. Score on Malabar Vocabulary Test
17. Number of clauses per T-unit
18. Mean length of clause
19. Number of adverbial clauses
20. Number of adjective clauses
21. Number of noun clauses
22. Per cent of unmodified nouns and pronouns
23. Mean length of T-unit
24. Per cent of words in mazes
25. Per cent of words in reportage responsums
26. Per cent of words in T-units
27. Mean length of three longest T-units
28. Mean length of three longest T-units without variations
29. Number of verbals used
30. Corrected raw score on Total Reading, Stanford Primary I

TABLE B-20

CORRELATION MATRIX* FOR 27 ORAL LANGUAGE MEASURES, CHRONOLOGICAL AGE, VOCABULARY AND READING SCORE--74 PUPILS IN A2, B3 and A3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	•																													
2	-.08																													
3	.12	-.11																												
4	-.04	-.06	.22																											
5	.48	.10	.10	-.06																										
6	-.03	-.18	-.13	-.04	.11																									
7	.04	.28	.03	-.13	.28	.67																								
8	.21	.00	-.01	.14	.15	.55	.35																							
9	.01	-.13	-.15	-.02	.15	.92	.61	.40																						
10	-.16	-.18	-.06	-.02	-.09	.66	.47	.39	.39																					
11	.11	.03	.18	.18	.33	.45	.59	.44	.35	.38																				
12	.10	-.03	.13	-.12	.14	.32	.44	.22	.31	.18	.22																			
13	.17	.08	.13	-.09	.25	.31	.48	.27	.29	.17	.29	.77																		
14	-.03	.12	.17	.02	.08	.59	.58	.49	.51	.35	.48	.55	.45																	
15	.01	-.01	.18	.17	-.16	-.21	-.23	-.02	-.15	-.21	-.13	-.20	-.08	-.20																
16	-.34	-.09	.19	.00	-.10	.12	.12	-.10	.16	.03	.03	.21	.16	.22	-.04															
17	-.15	.06	.06	.16	-.11	.24	.19	.32	.16	.17	.16	.14	.18	.42	.18	.27														
18	.00	-.27	.18	.06	-.02	.11	-.10	.13	.02	.23	.10	.20	.16	.18	-.08	.15	.12													
19	-.02	-.06	.00	.00	.11	.49	.32	.59	.31	.19	.36	.12	.22	.52	-.06	.01	.48	.12												
20	.23	.14	.01	.00	.19	.14	.26	.03	.20	.06	.01	.40	.45	.13	-.03	.00	-.08	-.12	-.18											
21	.13	.11	.09	.06	.20	.13	.31	.18	.04	.09	.31	.24	.38	.39	.07	-.02	.24	.09	.32	.10										
22	-.19	-.08	-.07	.16	-.18	.03	-.12	-.21	.05	.02	-.11	-.61	-.78	-.24	.06	-.08	-.09	-.10	-.10	-.32	-.24									
23	-.08	-.26	.01	.07	-.08	.01	-.26	-.23	-.04	.00	-.10	.01	.08	.01	.05	.19	.16	.51	.21	-.05	.20	.03								
24	.25	.16	.06	.11	.15	-.02	-.02	.31	-.03	-.05	.17	.04	.06	.17	-.07	-.10	.09	.38	.14	-.16	.24	-.04	-.01							
25	-.04	-.20	-.12	-.07	-.23	-.48	-.63	-.52	-.42	-.34	-.56	-.49	-.52	-.58	.08	-.04	-.29	-.29	-.38	-.05	-.33	.27	.16	-.49						
26	-.11	.12	.10	.01	.17	.57	.74	.40	.50	.43	.53	.54	.56	.55	-.06	.10	.26	.10	.35	.15	.23	-.28	-.17	-.06	-.84					
27	.14	.01	.21	.08	.18	.45	.41	.58	.33	.34	.47	.47	.47	.71	-.06	.14	.38	.41	.46	.22	.39	-.28	.19	.28	-.58	.49				
28	-.16	.02	.05	.19	.02	.56	.56	.51	.41	.54	.54	.30	.36	.59	-.06	.08	.44	.36	.50	-.03	.38	-.05	.12	.21	-.66	.62	.69			
29	-.02	-.27	-.04	.00	-.07	.05	.02	.06	.03	.03	.11	.20	-.01	.15	.06	.19	.17	.32	.10	-.23	.00	-.03	.18	.13	-.14	.08	.15	.19		
30	-.10	-.13	.06	.06	-.02	-.04	-.07	-.08	.00	-.15	-.03	.03	.10	-.02	.25	.45	.07	.09	.03	.06	.18	-.14	.26	-.14	.03	.05	.04	-.09	.21	

*Correlation coefficients above .23 are significant at the .05 level; those above .30 are significant at the .01 level.